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THE
LETTER-PRESS PRINTER:

A COMPLETE GUIDE TO THE ART OF PRINTING

CONTAINING

PRACTICAL INSTRUCTIONS FOR LEARNERS

AT

CASE, PRESS, AND MACHINE.

EMBRACING

THE WHOLE PRACTICE OF BOOK-WORK, WITH DIAGRAM AND COMPLETE SCHEMES
OF IMPOSITIONS; JOB WORK, WITH EXAMPLES; NEWS-WORK, COLOUR
WORK, TO MAKE COLOURED INKS, TO WORK PRESS AND MACHINE,
TO MAKE ROLLERS, INSTRUCTIONS IN STEREOTYPING,
AND OTHER VALUABLE INFORMATION.

BY

JOSEPH GOULD,

PRINTER.

FOURTH EDITION.

LONDON:

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P R E F A C E .

THE First, Second and Third Editions of "The Letter-Press Printer" having been disposed of, and a new edition inquired for, I have much pleasure in introducing to the trade a Fourth Edition.

Of the First, Second and Third Editions over 9,000 copies were printed and sold, a quantity that has far exceeded my most sanguine expectations. This great success I attribute to the flattering notices of the trade journals, and to their warm recommendations of the work.

I have done my utmost to improve the present edition in all the departments on which it proposes to afford instruction, and I hope my endeavours have been sufficiently successful to merit the continued approval of the trade.

The Colour Printing section has been carefully read, corrected, and added to by a gentleman of great experience, who is at present managing one of the principal colour printing establishments in London. He pointed out some errors in that section of my First Edition, and kindly volunteered his gratuitous services to make "Colour Printing" more useful, reliable, and valuable in this edition. I tender him my warmest thanks.

I have added a page or two of Furnitures and a few additional

instructions in imposition, which I hope may be found of service to the uninitiated.

Stereotyping having become almost universal, I have given such instructions in that branch of the business as may be of service to those who are ignorant of its various manipulations.

The Historical Introduction has been written specially for this work by Mr. J. Southward, a gentleman whose works on printing are universally known and appreciated. He has treated the subject in a manner that cannot fail to give satisfaction, and I tender him my sincere thanks.

The following extracts from the Preface of the First Edition of this work will explain the objects I had in view in then publishing it, and my desires and aims remain the same.

“ My first object in writing was to endeavour to explain the various systems of working as practised by a journeyman printer ; and to give Examples where I considered explanation would be insufficient or difficult. As far as I have been able, I offer in the following pages the experience of one who has worked at the various branches of the business which are treated upon ; and I have tried to make all so plain that I hope it cannot fail to be understood.

“ Above all, it has been my wish, in producing this Manual to make it a useful and an instructive guide to the actual mechanical and other operations to be gone through in the course of working at case, press, or machine, and to do so in the most comprehensive manner. It has also been my aim to offer such instruction to the jobbing compositor and the news-hand as would enable them to take a frame in any book-house,

and to show the news or book compositors how to make themselves useful in a jobbing office.

“The branch of the business upon which I have had least personal experience—the daily newspaper—would have been passed over but for the kindness of a friend, a London morning news-hand, who supplied an article on that subject.

“My hearty thanks are due to our mutual friend Mr. Self, (late Secretary of the London Society of Compositors,) for his kindness in looking over the book-work portion of this work, for his voluntary offer of any assistance I might need, and for his encouraging and friendly assurances.”

Some of the various tables which are introduced are copied from the “The Compositor’s handbook,” published in 1854, by Simpkin, Marshall, and Co.; and the remainder from other sources.

I have added a few extra Tables and Receipts, which I hope will be found useful.

J. G.

November, 1888.

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HISTORICAL INTRODUCTION.

BY JOHN SOUTHWARD,

*Author of "Practical Printing," "Dictionary of Typography,"
etc., etc.*

THE art of Printing—or, to speak more correctly, that branch of it called Typography (to which alone this book is devoted)—was invented, it is believed, by a German named John Gutenberg, between the years 1450 and 1460. Some bibliographers are, however, of opinion that there was if not a previous at least a simultaneous invention of the art in Holland; but the balance of evidence at present seems to favour the claims of Gutenberg.

Very little is known with certainty of the early life of Gutenberg. He was born at Mainz, probably about 1398 or 1399, took his mother's (not his father's) family name of Gutenberg, and was living at Strasburg in 1434. A trial at law in that city, in 1439, revealed the fact that he was engaged in some experiments whose object was a profound secret; and that among the appliances he had constructed for carrying out those experiments were "four pieces laying in a press," which Gutenberg desired should be destroyed or separated, so that no one should see them. These four pieces were not a part of the press, but when put together constituted one tool. There was no secret about the press, and probably printing from engraved wooden blocks was done before this time on a press resembling the ordinary napkin press. It is believed that this tool was a mould for casting types, and in that consisted the invention of printing.

In 1448, Gutenberg was living in Mainz, and it is probable

that he was engaged in printing small jobs, such as a Boy's Latin Grammar, an Almanack, and some broadsides. About the year 1456, probably some little time before, he published an edition of the *Biblia Latina Vulgata*. It is a noble book, in size demy folio, and contains 1764 pages, each page being arranged in two columns, and each column having 36 lines. As Gutenberg's office was destitute of such appliances as composing sticks, setting rules, iron chases, galleys, and imposing stones, it is probable that this work occupied about three years in its production.

Gutenberg had been assisted with money by a local goldsmith and money-lender named John Fust, who afterwards sued him for the sum, and was permitted to take possession of the entire printing-office. At the age of 60, however, Gutenberg determined to set up a new office. By this means he printed a Latin Dictionary and some other works, and only relinquished it through the growing infirmities of old age. He died in 1468 or thereabouts.

In 1462, however, the city of Mainz had been besieged and captured. The workmen belonging to the printing-office were dispersed, and carried the art into different countries.

In 1472 or 1473 there was at Bruges a printing-office founded by Colard Mansion. Among his customers was an Englishman named William Caxton, formerly a mercer, then the representative there of the English merchants settled in the Low Countries. Appreciating the advantages of the art for multiplying copies of his literary productions he employed Mansion to cast for him a new fount of types. In 1476 Caxton returned to England with the view of introducing the art of printing into his native country. William Caxton is thus entitled to be regarded as the first English printer. He set up his press near Westminster Abbey, and in the following year there issued from his office the first book ever printed in this country, called the *Dictes and Sayings of the Philosophers*. It is a folio of 76 leaves. Between this year and 1491, when it is supposed he died, he published a large number of books, some of them of his own composition, others being translations. Of his private or business life little is known with any certainty.

Soon after Caxton established himself at Westminster, Theodoric Rood, who came from Cologne, began printing at Oxford. Two offices were in operation in London during the time of Caxton, being owned by John Letton and William Machlinia respectively, who came from Germany. Wynken de Worde, one of Caxton's workmen, succeeded his master, and another assistant, Richard Pynson, a Norman, commenced to practice the art after the death of Caxton. Such were the beginnings of the typographical art in England. The first printing-press in Scotland was put up at Edinburgh, in 1507 ; the first in Ireland, at Dublin, in 1551.

Let us now see what were the tools and the usages of the early printers. The earliest German types were imitated from the Gothic letters of the manuscripts of the period ; in Italy the letters were cut in imitation of the popular form of Roman letters. From the first-named are derived our Black-letter founts ; from the second, the ordinary Roman founts. The dimensions of each body were determined by the necessities of the " copy " or manuscript. There was no system of regularly graduated sizes, and typefounding was regarded as a branch of the printer's business. The words and paragraphs were " run on " in the most perplexing manner, pages presented a mass of black types. There were no titles, no running titles, no chapter headings, no folios to the pages. Instead of spaces to divide paragraphs, an illuminator rubricated the initial letters. Words were divided at the ends of lines without any system ; in the very earliest books the lines themselves are of irregular length. Proper names were begun sometimes with a capital, sometimes with a small letter. The only points used were the comma, colon, and period, and they were inserted capriciously. A great number of words were abbreviated, apparently at random.

Arabic figures, instead of the present Roman numerals, were first used in 1470 ; the first example of a title page is contained in a book dated 1477. Galleys were not known for some time after the diffusion of the art ; the types were placed line by line, perhaps letter by letter, in wooden trays, which served as chases. The types were inked by balls. It is supposed that Gutenberg's invention of oily ink was suggested by the oil colours of painters.

The first books printed were on sheets about 16 by 21 inches, and only one page could be printed at one time at the press.

William Caxton, as has been mentioned, had his types, or at least some of them (and he only possessed eight founts during the 17 years of his career as a printer) cast abroad. When the art of printing became sufficiently developed, a division of labour followed, and type foundries were separated from printers. It is not known who was the first English founder; indeed the early history of typefoundries in England is altogether lost. The first great founder, however, was William Caslon, born in Shropshire in 1692, who set up his foundry about 1723. This foundry is still in existence, and has obtained a world-wide fame for the excellence of its types. One of his apprentices, Jackson, started a foundry of his own, but it was bought by a descendant of Caslon, and in 1819 the punches, matrices, &c., were purchased by Blake, Garnett, & Co., of Sheffield. This foundry is now the property of Messrs. Stephenson, Blake, & Co. In 1793 Vincent Figgins, also an apprentice and afterwards foreman to Jackson, began the business still carried on under the style of V. and J. Figgins. A fellow apprentice of Jackson, Cotterill, also set up a foundry, which was purchased by Thorowgood, about 1820, who afterwards took into partnership Mr. Robert Besley, since Lord Mayor of London. The late Charles Reed and Mr. Fox bought it in 1862; it is now conducted by the firm, Sir Charles Reed and Son.

These great foundries all owe their origin, therefore, to William Caslon. The Scotch typefoundry business was begun, on an independent basis, by Alexander Wilson, of Glasgow; and his foundry now exists as the Marr Typefoundry Company, Limited, Edinburgh. One of Wilson's employees, William Miller, started a foundry in Edinburgh in 1809; it is now carried on by Messrs. Miller and Richard, Mr. Walter Richard, Miller's son-in-law, entering into the partnership in 1823. These are the principal English and Scotch foundries, and for many years monopolised the business of Great Britain. Several foundries have, however, since sprung up, the most important of which is the Patent Typefoundry Company, of London, now the property of Messrs. Peter Shanks and Philip Revell.

The Printing Press and Machine.—It has already been stated that the invention of the printing-press may not be attributable to Gutenberg. Parts of a press, at which it is believed he worked, have been discovered during the present century, which led to the belief that the model he adopted was little more than the common wine or napkin press, the chief appliances being a platen, which was made to approach the forme by the use of a screw. By the year 1507, a travelling carriage, moved by a rounce, a tympan, and a frisket had been added. This press was in use for nearly three centuries. A Dutch printer, about the middle of the 17th century, however, improved it by steadying the platen and giving it a recoil when the bar was returned. The first great improver of the press was our noble countryman, Charles Mahon, third Earl Stanhope, who invented an ingenious arrangement of links and leavers, and was able to use a platen double the size of any that was before practicable. His press, too, was the first that was constructed entirely of iron. Ruthven, of Edinburgh, in 1813, George Clymer, of Philadelphia, in 1817, and R. W. Cope, in 1824, made further improvements.

The first printing machine was constructed by Frederick Koenig, a German, in 1810. It was a platen machine; but in 1812 a cylinder and a travelling bed were adopted. The first newspaper machine was made by Koenig for Mr. John Walter, of the *Times*—a two-feeder, turning out about 1000 impressions per hour. Applegath and Cowper greatly simplified and improved the existing model, and in 1824 invented the perfecting machine. In 1827 they constructed a four-cylinder machine, which printed 6000 impressions per hour, and superseded Koenig's. In 1848, Applegath devised a machine with eight vertical cylinders, which printed 12,000 impressions per hour. In 1857, the Hoe Machine was introduced into this country from America; a ten cylinder machine gave about 20,000 impressions per hour. The Marinoni machine was brought from France in 1868. The Walter Press was completed between 1862 and 1868; and the edition of the *Times* was printed on presses of this kind in 1869. About the same time the Victory Machine was invented by Duncan and Wilson, of Liverpool.

The first machine specially intended for jobbing was invented by David Napier, in 1824. It had a large impression cylinder, the sheets being fed in from the top. About 1850, Thomas Main invented the small cylinder jobbing machine, which has been adopted since as a model by many different makers, among them Messrs. Harrild, who manufacture the beautiful Bremner Machines. Many important improvements have, however, been added. The small jobbing treadle machines were invented by George P. Gordon, of New York, and first introduced into this country in 1867.

Composition Rollers were invented by Bryan Donkin in 1811, but they were not actually brought into use until 1818, when Cowper invented the modern ink-table and press roller. Since then, indiarubber and other substances have been proposed; but they are not equal to the mixture of glue and treacle, except for very fast newspaper machines.

Stereotyping with plaster was invented by William Ged, of Edinburgh, goldsmith, in 1725, but was allowed to fall into disuse a few years afterwards. It was again invented by Foulis and Tilloch, of Glasgow, in 1784, and greatly improved by Earl Stanhope. The paper process was introduced into this country by Vanoni, a maker of plaster casts, in 1846, and improved by James Dellagana. Indiarubber stamps were invented by Alfred Leighton, in 1864.

Electrotyping for printing purposes was first practised by Morel, a Frenchman, assisted by Messrs. Cassell, Petter, and Galpin, about the year 1860.

Such is a rapid review of the progress of typography during the past four hundred years. Perhaps no industrial art has received such a development; yet it must not be concluded that invention has exhausted itself. To the art of printing "Thus far shalt thou go and no further," cannot possibly be said. There is no limit to the improvement of which even yet it is capable; the products of the present will inevitably be eclipsed by the products of the future, just as the achievements of the past have been outshone by those of the present.

THE LETTER-PRESS PRINTER.

—: o:—

BOOK - WORK.

—: o:—

DISTRIBUTING.

THIS is one of the most important operations of the compositor, because carelessness in this will undoubtedly cause much loss of time and trouble, besides (unless the matter is most carefully read and corrected in the stick) giving an impression of inattention and slovenliness in the workman; for nothing looks worse, or lowers the compositor more in the eyes of his employers and fellow-workmen than “dirty” proofs.

Before commencing to distribute, first thoroughly wash and rinse your type, either on galleys or in the form, unlocked on a letter-board, in the trough; then take a convenient quantity on your composing-rule, or a lead, in your left hand, letting the matter rest across the third and little fingers and against the palm of the hand, keeping it steady with the thumb and other fingers. With the forefinger and thumb of the right hand take a word or two from the uppermost line of the handful, at the same time observing what the words are; then drop each letter one by one into its proper “box”; and as very much depends upon distribution, the compositor should be most careful that no type falls into a wrong portion of his case.* Also carefully note the spaces between the words, so that they may be properly separated and thrown into their proper boxes. The thin and middle spaces are usually thrown into the thin space box; it is however best to mix a portion of the middle

* Since writing the above and following pages I have been favoured with the loan of *Stower's Guide to the Art of Printing* (published 1808), from which I extract the following:—

“The compositor will find it to his advantage composing from a clean case, though he may be longer in distributing it. A man loses double the time in correcting that he imagines he saves from quick and slovenly distribution.”

spaces with the thick, so that in spacing out thin spaces may be added to the middle.* For poetry the thick spaces should not be mixed. After some practice the operation of distributing becomes almost involuntary, and may be performed with very great rapidity.

COMPOSING.

COMPOSING is the term used to denote the act of arranging different types into words and sentences; and is considered the most important operation in the art of printing. What is most essential to the beginner is a thorough knowledge of the English language, spelling, and punctuation; he should also understand what is meant by roman, italic, condensed, expanded, two-, four-, and six-line, antique, script, ornamental, and other types; what are dashes, leaders, leads, quotations, furniture, mallets, shooting-sticks, and planers; the various names of the different sizes of type and other things he will come in contact with in all printing offices. Having thoroughly learned the "lay" of the cases, and been instructed in the first rudiments of the trade, the apprentice may commence to "set."

What is most coveted by the ambitious typo. is to be able to compose with quickness; and being able to pick up types swiftly, combined with the after-advantage of an almost spotless proof, constitutes what is considered a good compositor. We find, however, that, compared with really good compositors, there are a preponderance of indifferent and slow workmen. The question then occurs, Why cannot one compositor work with as much quickness as his companion, if he be endowed with as much talent and natural ability? There are many reasons; and it behoves all, more especially beginners, to guard as much as possible against practices that will baffle their efforts to acquire speed. Pernicious habits may gradually and almost imperceptibly be developed when learning to compose which it will take years to eradicate; it is therefore absolutely necessary that these should be guarded against. Bear in mind

* "It is necessary to observe that the thin, middling, and thick spaces are generally mixed together, as there is less trouble in justifying by taking them up at random, than when they are all kept separate; for should there be occasion to alter a thick space to a middling, or *vice versa*, it may be necessary to change them all in order to make the line even, when, by taking them up as they occur, there is the greater chance of justifying the line regularly without much loss of time."—STOWER.

that every movement which does not in some way assist in the work of composing should be shunned as unnecessary ; and let the young compositor by careful training endeavour to avoid such. One of the most usual unnecessary movements is the habit of picking up a type, and striking the composing-rule or stick to turn it, thus wasting almost as much time as is required to pick up another letter. Some have a habit, when they have taken up a type properly, of raising their hand so as to describe a half circle, instead of bringing the type straight to the stick and depositing it there. Others (always in a hurry) snatch at the type apparently at random, and after two or three "attempts" manage to seize one ; whereas if they had gone coolly to work two might have been placed in the stick during the time. Then again, some in their anxiety to be quick strike the bottom of the type on the top of the composing-rule, rendering another movement necessary ; and many have acquired a habit of shaking the body and nodding the head, sometimes to a rather violent extent, causing much unnecessary fatigue. Although but few compositors are entirely free from all false movements, many have several combined, and waste time in worse than useless movements ; and when these drawbacks are aggravated by a compositor being naturally slow, the waste of time becomes still more apparent and annoying.

To compose with ease is a very important thing to be considered ; therefore we must study to attain an easy position. Some compositors prefer high frames — the height of the breast ;* but high frames are not favourable to ease, the arms soon becoming tired, from being removed so far from their natural position ; although many urge that use is second nature, and that after using high frames for a few weeks no inconvenience is felt. Others prefer lower frames, reaching about two inches above the elbow, which, I think, are preferable.

* "What to a learner may appear fatiguing, time and habit will render familiar and easy ; and though to work with his cases on a level with his breast may at first tire his arms, yet use will so inure him to it, that it becomes afterwards equally unpleasant to work at a low frame. His perseverance in this mode will be strengthened by the reflection, that it effectually prevents his becoming round-shouldered, a distinguishing mark by which compositors above the common stature are generally known. This method will likewise keep the body in an erect position, and prevent those effects which result from pressure on the stomach."—STOWER.

"The slow compositor is he who stands up to a case too high, clutches his stick too tightly, and makes false motions. The man who stands to a low case, holds his stick loosely in his hand, carrying it around over the boxes, so that the picking hand has a shorter distance to travel, and brings a letter every time, is the man you read about in great feats of type picking."—*American Newspaper Reporter* (1874).

At such frames the compositor's arms are in a more natural position, and he can follow his right hand with his stick all over the lower-case. At the lower frames the body may also be kept erect with as much ease as at the higher; and the elbows being kept closer to the sides will be found to promote both ease and expedition. However, let it be understood, in offering the foregoing remarks, I give them only as my opinion of the proper height of the frames, in conjunction with the easiest and most expeditious mode of composing; and that, although others may differ from me, I believe all who give an unprejudiced trial to both high and low frames will prefer the latter.

In beginning to compose, try to arrange something like a system,* and studiously endeavour to learn it so perfectly that it shall become a thoroughly confirmed habit to do what is to be done properly; and bear in mind that causing the hands to dart backward and forward with great swiftness is not desirable. It is necessary to proceed steadily and systematically, and to thus acquire and cultivate the art of bringing each type to the composing-stick at once, without superfluous movements.† Proceed thus: take the composing-stick in your left hand, with the thumb reaching the composing-rule, cast your eye on the partition of the case from which you require a type, and having fixed upon one, pick it up at the first attempt and secure it in

* "He should not be too impatient to gain the reputation of a quick compositor; his principal study should be to acquire a proper method, though the progress be slow. This attained, expedition will follow from practice. It is not by velocity of movement that expedition is to be gained, either in composing or distributing; it is to system, without which their attempts may have the appearance of expedition, but produce only fatigue from anxiety and false motion. To system, therefore, we would particularly call their attention, and as clean distribution generally produces clean composition, which not only saves time at the stone, but acquires them a respectable name, they cannot be too attentive to that part of their business."—STOWER.

† "A determination not to make any false motions, however fruitless it may at first appear, will in a day or week visibly increase the number of ems set; that is, by sighting the nick before the hand goes out to pick up the type, so that when it is taken up by the thumb and forefinger there need be no necessity for turning it around to see where the nick is, the arm meanwhile making a false or lost motion that would have sufficed to bring another type into the stick. These false motions not only consume time but become chronic, and increase in number and intensity, so that some men fairly shake themselves to pieces, and only set perhaps five or six hundred ems an hour. We have known men who acquired this nervous jerky style in setting type, and making two or three motions for every type secured, almost entirely rid themselves of the superfluous shakes by adopting a slow and measured style, apparently unremunerative at first, but which gradually quickened into systematic speed. We therefore consider an avoidance of false motion is essential to fast type-setting."—*Printers' Circular* (American).

your fingers before removing the eye; and while conveying it to and placing it with all convenient rapidity in the composing-stick, fix your eye on the next type you require, and as before, while taking it to the stick, fix your eye on the type next required; and so on, being as expeditious and certain in all your movements as practicable, until the line is composed. Let the stick follow the right hand as closely as possible, for this is most important, as it saves an immense amount of time, and the distance the hand travels with each type from the case to the composing-stick will thus be reduced to a minimum.

When a line is composed, justify it either by spacing-out or getting-in; and while so engaged read it over carefully. While inserting the last spaces, lifting the setting-rule and placing it upon the line already finished, the compositor must look to his copy for the next words to be set up. He should never take more in his mind than is convenient, although certainly the more the better, if it can be taken with certainty, so that "outs," "doubles," and wrong words are avoided.

SPACING.

Spacing correctly and uniformly requires considerable calculation and thought on the part of the compositor. In book-work especially uniformity is expected, for the appearance of the pages depends greatly upon their spacing, and there must be, as far as possible, an equal space between each word of a line, and each line also should be as uniform as possible.

The thick space is the proper division between each word; but as it would be impossible to space all lines with that alone, it behoves the compositor to endeavour so to space that the inequalities shall be least noticed. In reducing the space, also, care should be exercised, and the spaces following the points must be reduced in proportion. After the comma no extra space is needed; but after the semi-colon and colon an en quadrat should be put, and after a full-point an em quadrat. Before the ! ? : ; and " a thin space must be put, and also after inverted commas (").

In spacing the short lines of paragraphs, or poetry, place all the spaces required to justify the lines immediately after the last word, so that they will be most convenient when distributing the matter.

UNIFORMITY IN COMPOSITION.

With regard to general uniformity in composition, I quote the following from an excellent article, signed "J. B. C.," which

appeared in the *Printers' Register*, Nov. 6, 1871, and which tallies with much of my own experience in different book-houses. He says:—

“Uniformity in Composition is of great consequence in the setting-up of type ; for by attention being paid by the compositor to this matter, the pages of a work are often improved in appearance, and the time of the reader saved to a considerable extent. It is a good practice, where any particular style is to be observed, for the overseer to issue printed or written instructions to the compositors as well as to the readers. Some houses have a totally different style of using capitals and points to others ; some, again, prefer wide spacing, while others maintain that an average thick space is sufficient throughout the line. Oftentimes where a volume is to be reprinted, and the type is somewhat thicker in set than that used by the previous printer, the order goes forth to space close, so as to get in within the required limits.

“We knew of a printer who would rather see a widely-spaced line than submit to a word being divided ; and preferred leaded-matter to be double-thick spaced, or even as much as an en quad and a thick space between the words. Within sight of this office was another, where any division of a word was allowed—provided it was a legitimate one—rather than the line should exceed thick spacing. Even such a word as ‘John-ny’ was considered passable with the ‘ny’ turned over into the next line. We were brought up in the first-named of these two houses, and had been so accustomed to wide spacing all through our apprenticeship that it became quite natural to us to adopt the same system elsewhere ; but circumstances led to our being employed in the last-named office, and the first ‘take’ of copy which fell to our share was about two and a-half pages of 12mo Long Primer. Judge of our astonishment, when the proof came out, to find that we had to overrun every line and reduce the spacing between every word—causing us to re-make-up two-thirds of a sheet by the less number of lines the ‘take’ then made ; and yet there was not half-a-dozen literal errors in the whole of it. The worst part of all was a note that was appended to the proof, to the effect that whoever had set-up the matter thus, ‘with so many pigeon-holes between the words,’ was to be discharged as soon as he had rectified it. However, upon an explanation being offered, we were allowed to continue in the establishment, and rose in the estimation of the employer whose anger had thus been aroused ; but we took great care to study the style of the house,

and act up to it. We have mentioned this circumstance to show how varied are the regulations of different offices.

“With regard to *Capitals*. Some houses keep the caps. down as much as possible, whilst others will use them very frequently. Houses where religious books are printed, make it a rule to cap. such words as He, His, Him, Whom, &c., when alluding to the Deity; in addition to these capitals, High Church works especially are found with GOD, CHRIST, HOLY GHOST, and all words referring to the Trinity, in small caps., and sometimes where extra emphasis is desired, a copious use of italic and capitals is indulged in; but it causes the page to have more the appearance of an advertisement, instead of the neatness which should always grace the text of a volume.

“Then as to *Figures*. How frequently do we see, in the same article, the age of a man, for instance, in figures at the commencement, whilst further on it is put in words. This arises from the carelessness of both the compositor and the reader. Some houses prefer the ages of persons, or any other numbers, unless in statistical matter, in words rather than figures. Others prefer a liberal use of figures to save space. Some, again, adopt the plan of putting all numbers under a hundred in words, and all over a hundred in figures. But newspapers generally stick to the plan of putting all numbers under ten in words: this often has a very disagreeable look to a person of taste. Now figures, unless in tabular matter, do not improve the beauty of composition; on the contrary, like a too liberal use of capitals, they produce a certain ugly prominence that destroys the effect of the page. What can look worse than the following example, which is similar to others frequently met with in the columns of a newspaper, and is a style which we decidedly object to. After giving the details of a dreadful accident and loss of life, the report gives a list of persons who perished, with their ages, &c. :—

““Esther Thompson, 42; Joseph Thompson, four; Esther Thompson, nine (children of above); George Jones, 62; Ellen Smith, 10; Cornelius Smith, eight; Arthur Smith, two. There were 10 others injured, nine of whom are but slightly hurt.”

“Why not have put all the ages in figures? The paragraph would have been more uniform, and looked far better. Our opinion is, that figures should be avoided as much as possible, excepting in such pars. as the one we have quoted, and other statistical matter and tables; but if they are used, the system should be adopted throughout an article—in fact, throughout a work—whatever the number may be, whether one or a thousand.

“We have been led to make these remarks from the various styles which we find casual hands adopt when occasionally called in to assist, and the careless manner in which a majority of them perform their work. It shows plainly, that for a man to be a thorough compositor he requires to see as many changes as possible as soon as he completes his apprenticeship; for experience in the different modes practiced in the different offices will prove of the greatest value to him when he settles down in a steady situation. At the same time, unless he gives his mind to study these various styles, and in composition to adhere to the rule of the house in which he may be employed, his experience will not be of much avail.”

CORRECTING.

Correcting is a necessary evil, as it not only diminishes the earnings of the compositor but is prejudicial to his health, through leaning over the stone. It is, however, the carelessness and inattention of the workman in many instances that causes the nuisance—and I may say, the disgrace—of a foul proof. Certainly, in the confusion, noise, “rush,” and unnecessary talking, in many badly-regulated offices, it is not to be wondered at that the compositor’s attention is sometimes distracted, and he finds it difficult to concentrate his thoughts on his work as much as he could wish. But in some instances neither the disgrace of a foul proof, nor the trouble and waste of time in correcting it, will enforce on careless workmen becoming attention.

As soon as a proof is put into the hands of the compositors, the one who has the first pages in the sheet,* if they contain corrections, must lay-up and carefully unlock the formes, leaving the coins slack, but in their places. He must then gather the corrections between the forefinger and thumb of his left hand, or in his composing-stick, and taking a space-box he commences to correct. He raises the line containing his first correction with the bodkin in his right hand and the forefinger of his left, by pressing them against each end of the line, just sufficiently high to allow of any wrong type being easily extracted. He then takes out the wrong type and inserts the right one, and should the space require reducing or altering in any manner, he can easily do that before he allows the line to drop into its place. While engaged correcting the first error, look for the next, and proceed in the same manner until all literals are corrected. Should there be any “outs,” “doubles,”

* The first in a sheet does not in every house lay up the formes. I give the different modes of working in another part of this manual.

or anything requiring overrunning, take out a few lines near where the alteration is required, and put them on a galley with the last line to the top of the galley. If an "out" makes nearly a line, it will be easy to so space the following lines as to make even without overrunning, and without appearance of uneven spacing. Should a word or two require getting-in, notice whether any of the lines before or after the one requiring the insertion can be reduced so as to take in a word of the adjoining line, and by reducing the spacing judiciously, in a few lines the words may be got in. If there be a "double" of a word or two, take a few lines in the same manner on your galley, and space out carefully so as to turn a word or two from the adjoining lines into the one containing the "double" sufficient to fill up the space required. (*See the Examples given below.*) Whenever a word is to be altered, lift the line into the stick so as to insure even spacing; and whenever the spacing of a line requires altering, the quickest and most satisfactory manner is to do it in the stick. It is not advisable to have the lower-case on the stone, and take out the corrections as they are required, as some compositors do, for various reasons: for by gathering the corrections between the finger and thumb they act as a check, should any have been overlooked in making the alterations; but by taking the corrections from the lower-case as they are wanted there is no check whatever, if any corrections are not made, so that the further annoyance of a revise, with its consequent loss of time, would have to be corrected. So soon as the first in the sheet has corrected he must pass the proof to the compositor whose matter follows; and so on to the end of the sheet.

Paphos, one of the cities of

He first sailed with his fleet to the isle of Cyprus and reduced the greater part of it to his obedience. Nicocles, the king of that island, submitted to him like the rest, but made a secret alliance with Antigonus a year or two after. Ptolemy received intelligence of this

proceeding; and, in order to prevent the other princes from imitating his example, he ordered some of his officers in Cyprus ~~to destroy him~~; to destroy him; but they being unwilling to execute that commission themselves, earnestly entreated Nicocles to prevent it by a voluntary

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"Out" got in

"Double" driven out.

TAKING COPY.

In taking copy for book-work always make enquiries as to measure, whether anything special is required to be observed in the punctuation, and whether anything in particular must be "kept up" or otherwise, as a few instructions may save much time and trouble. In many cases, however, the compositor is allowed to use his own discretion as regards punctuation. When the copy in hand is finished enquire of the compositor who has the next "take" whether you have any on his copy to finish. On book-work it is a very rare occurrence for the compositor to "make even."

TITLES, DEDICATIONS, &c.

TITLES.

IN setting titles the taste and judgment of the compositor must be exercised; plain types, in my opinion, only ought to be used, and rules are usually omitted. All catch lines should be set in small capitals; and the principal lines in fine light romans. Where much display is required, an occasional line of full-faced or expanded roman, old-english, or other plain type may be used with good effect. The printer's or publisher's imprint, or both, must be put at the bottom of the title.

I might here give more explicit directions for setting titles, but considering too many directions are likely to embarrass the learner, I intend giving some illustrations of titles further on in this work; for, I believe, doing so will be the plainest method of instruction.

DEDICATIONS.

The dedication must be placed on the third page, and is generally confined to one page; it ought to be neatly displayed with small caps. and caps. of the same type, or smaller than the body of the work. The name of the person to whom the work is dedicated is usually put in larger capitals, and the author's name, &c., in smaller capitals than those used throughout the dedication. The words, "Is dedicated to," &c., are frequently inserted in one line of church-text.

PREFACES

Are set either in a size larger or smaller than the body of the work, and are either leaded out or not, according to the

taste of the printer or author. The running-title is set in the same type as the body of the work, and the folios used are sometimes lower-case numerals.

It is also customary in some houses to set the preface in the same type as the work, but to make a distinction by inserting extra leads. If an introduction be given it is set in the same type with or without any distinctive feature, according to taste.

CONTENTS.

The summary of contents follows the dedication; the type used being in every instance smaller than the body of the work. The usual method is to set the summary in caps. and small caps., with the folios at the end of the lines. The index is put at the end of the work, and should be alphabetically arranged.

HEAD-LINES (RUNNING-HEADS).

Head-lines are the lines at the top of each page, and usually contain the title of the work on the even page, and the subject of the chapter or page on the odd, and also the folios. The folio is placed at the beginning of the line on the even, and at the end of the line on the odd pages. The head-lines are generally set in the small caps. of the type the work is set in; although, as tastes differ, some are set in italic caps. or lower-case—especially in magazines—and in some instances a double thin or single thin rule is put after the head-line. Where the pages of a work are in columns, a full single or double rule ought to be placed at the head of each. Chapter headings are set in capitals larger than the body of the work; sometimes in neat titling letter; and if explanatory headings are used they are set in type two or more sizes less than the text.

SIGNATURES.

Letters of the alphabet are placed at the bottom of certain pages of each sheet to guide the bookbinder in arranging and folding the sheets. The first sheet or half-sheet of a work is usually commenced with signature B; the title, preface, &c., (which are left till the end of the work,) being considered sig. A. The letters J, V, and W are omitted. Should the number of sheets exceed the number of letters in the alphabet, the letters are doubled, or a figure placed before them thus—Bb, Cc, 2B, 2c, &c.

In some offices figures instead of small caps. are used for signatures.

In half-sheets of quarto, octavo, &c., where the sheets are folded without cutting, the signature is placed on the first page

only; but in sheets of quarto, octavo, &c., even although they can be folded without cutting, signatures must be placed on the first and third pages—on the third page to indicate to the compositor and pressman that sig. B2 is the companion forme to sig. B. The positions of all the signatures, however, will be found in the diagrams of impositions.

INITIAL LETTERS.

When initial letters larger than the type of the work are used at the beginning of chapters, they should be justified so as to range exactly with the top of the type; and the first word ought to be set in capitals.

NOTES.

Should the work in hand have bottom notes, references must be put in their proper places while setting the text, and the compositor must put a piece of paper between the line containing the reference and the following one, to guide the clicker in making-up. The references usually used are the

Asterisk	*	Section	§
Dagger	†	Parallel	||
Double Dagger	‡	Paragraph	¶

Other references are also used; but those given are the most common. If there are notes to the notes, then superior letters or figures are sometimes used.

There are several kinds of notes, and they receive their names from the positions they occupy in the pages. Foot-notes or bottom-notes are placed at the end of the page. Side-notes on the margin of the page. Cut-in-notes are let into the text.

Notes are generally set in type two sizes smaller than the body of the work; and if the work be leaded, the notes are usually leaded with a thinner lead than the text, or set solid. Side-notes, like the folios, must be put at the beginning of the lines on the even and at the end of the lines on the odd pages of a work. They ought to be set, if possible, to even pica ems, so as to facilitate justification in making-up.

INDENTION

Common paragraphs are usually indented an em, although where the measure is wide, and sometimes in leaded matter a greater indention is given.

To “run out and indent”—sometimes termed a hanging indention—the first line of the paragraph is set full and the succeeding lines are indented.


Paragraphs begun with an initial letter, and those following chapter headings, are not required to be indented.

TO LAY A CASE.

Slide or lift the type out of the paper which contains it, either on to the imposing-stone or a wide metal galley, keeping the cord round it. Then wet the type with a solution of soft soap and water, which has a tendency to prevent it from sticking when afterwards used. Untie the cord, take up a few lines of the same letter on a setting-rule, then place the rule on the edge of the box into which the type must go, and push them off into the box, being careful that none of the types fall into the adjoining boxes. Repeat until the boxes are completely full. Should any sorts remain after the cases are filled, keep them in lines, make up the lines into convenient sized pages, tie up, paper, and label them, so that the sorts may be at hand when required for future use. Of course, where fount-cases are used the surplus sorts are kept in them.

THE UPPER-CASE.

I give the following illustration of the upper-case as it is most commonly laid. In some offices, however, the "lay" is quite different, the capitals and small capitals being commenced

A	B	C	D	E	F	G	À	B	C	D	E	F	G
H	I	K	L	M	N	O	H	I	K	L	M	N	O
P	Q	R	S	T	V	W	P	Q	R	S	T	V	W
X	Y	Z	Æ	Œ	U	J	x	y	z	æ	œ	u	j
1	2	3	4	5	6	7	á	é	í	ó	ú	§	†
8	9	0	£	ç	—		à	è	ì	ò	ù	||	‡
ä	ë	ï	ö	ü	...	k	â	ê	î	ô	û	¶	*

on the fourth line—A being placed in the X box, &c.,—while the accented letters, fractions, and other sorts are laid in the upper portion of the case. I have worked at cases where the figures were also laid in the upper portion of the case, although where

the common "lay" * of the upper-case is discarded the figures are often put in the lower-case. It is best, where several uppers are required for the same fount, to keep one for the accented letters like the one shewn, and another for the different fractions, which ought to be placed where the accented letters in this case are laid; each sort can thus be kept separate, and are always at hand.

THE LOWER-CASE.

The following is the common "lay" of the lower-case, and is almost universally used, with a few slight alterations, although it is capable of being greatly improved. But those who have the courage to make many alterations and improvements in the "lay" of the lower-case are usually rewarded by having their

—	] æ œ) j		Thin and Mle. Sp.	' ! ? ;	l fl
&					ff
ffl	b	c	d	e	i s f g
ffi					j fi
ffir	l	m	n	h	o y p , w
Sp					En- quadrats. Em- quadrats.
z	v	u	t	Thick Space.	a r q :
x					Quadrats .

cases extensively "pied" by strangers who may be occasionally called in to assist, and who, not being used to the altered lay, take some time to become sufficiently acquainted with it to be able to distribute into cases different from those they have been used to, so that the common lay is usually interfered with as little as possible. A very great improvement, however, with little alteration of the cases, might be introduced by having the thin and middle spaces close to the thick, the distance between them as they stand causing extra labour and a great loss of time in spacing. In double-cases the same "lay" is adopted, but the small-caps. portion of the upper-case is omitted.

* The "lay" of the cases seems not to have been altered for nearly a century; for, on comparing Stower's with the present, I find they are the same in every particular, except as regards the double letters used in the old-faced types.

IMPOSITION.

IMPOSITION consists in laying down the pages of a sheet or half-sheet so that they shall back and follow each other in their proper order; in placing furniture and chase round them; and locking-up the formes ready for proof.

MAKING-UP PAGES.

When ready to make-up, take the proper number of lines to make a page, including head-line and white after, and white at the bottom, press them tightly together; place a piece of reglet against the side, and cut a nick exactly even with the white-line at the bottom of the page, and keep it as a gauge wherewith to measure the length of the pages of the work.

In making-up, the first page commencing the work is invariably "dropped," that is to say, commenced lower down the page than the cross-heading. The distance it is dropped is ruled by taste and the size of the pages. The compositor in making-up his pages must make them all exactly the same length, for it will be impossible to "register" a forme properly unless this be done.

As each page is made-up, it must be tied tightly with small twine, by passing the twine three or four times round, and then fastening it by pushing a noose between the cord and the type at the bottom of the page, with the setting-rule, taking care to leave a loose end of the cord sufficiently long to facilitate the untying of the page after the furniture has been placed round it. The pages are then placed on page-papers—a piece of wrapping paper larger than the page—and kept in some convenient place till all are ready to be "laid down."

When the whole of the pages have been made-up for a sheet they must be taken to the imposing-stone and laid down in their proper places, ready to have the chases and furniture placed round them.

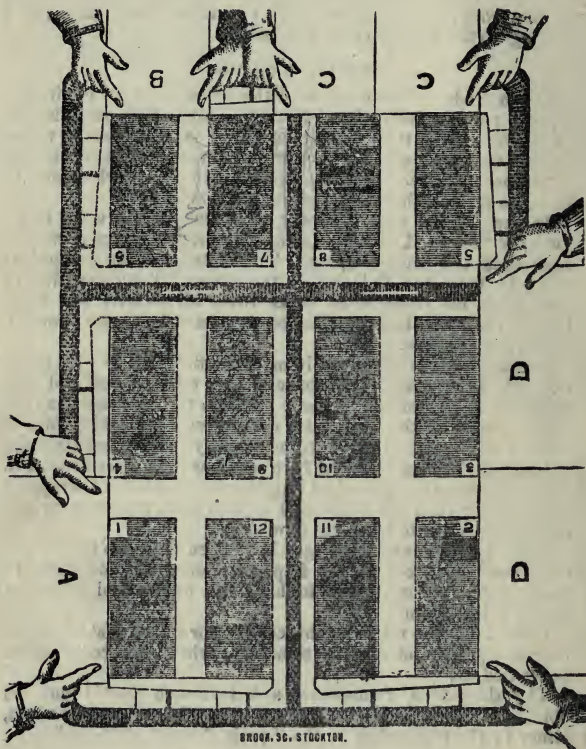
Care should be taken by the compositor to see that his pages bear the proper folios—and signatures when required—before being tied up.

The side-sticks, foot-sticks, and furniture should now be obtained from their places in the office, or from the store-room, either by the compositor or the "quoin-drawer overseer."

MAKING THE PROPER MARGIN.

Carefully look over the pages on the imposing-stone, to see that none have been laid down in a wrong position; and having seen that all are in their proper places, place the chases round

them. Procure a damped sheet of the paper that the forme will be worked on, and fold it to the required size—into four for 4to, into eight for 8vo, &c.; then the furniture must be



placed round the pages in such quantities that the pages will fall, when printed, a little nearer the top than the bottom, and nearer the inner than the outer edge of each division of the

paper. The following is the method of measuring to find the proper furniture required for a half-sheet of twelves; and in other impositions the same method holds good. Having the paper folded into 12mo, measure from the end of the line of page 7 (see fig. B.), allowing page 6 to come about a pica em within the outer edge of the paper, and then measure the distance between the pages; should it require seven ems between the two pages, the same will be required in the gutters* all through the half-sheet. Then open the paper and measure from the beginning of the lines in page 7, to the beginning of the lines of page 5, putting equal quantities of furniture on each side the cross-bar and sufficient to make page 5 come to the full outer edge of the paper. (See CC.) The heads are measured in exactly the same manner. (See figs. A and DD.) If a plentiful supply of metal furniture be at hand, the work of making-up furniture is comparatively easy, and may be accomplished with little loss of time; but where wood furniture must be cut for the sheet or half-sheet, care, skill, and judgment are required. If obliged to use part wood furniture, use it in gutters and backs. The furniture for the gutters ought to be cut a trifle longer than the pages, and that for the heads short enough to prevent their binding when the forme is locked-up. The side-sticks also should be a little longer than the pages, and the foot-sticks just short enough to prevent binding.

LOCKING-UP.

The forme having been properly "dressed" with furniture, put quoins slackly both at the side- and foot-sticks; and carefully untie the pages. Now commence to quoin the forme properly all round, and having done so, push the quoins up tightly with the fingers, then wipe the planer and plane the forme lightly, but well, turning the planer from side to side and planing the pages several times. Next tap the thick ends of both side- and foot-sticks, to cause the pages to go up well to their places, then drive the quoins gently up all round; next drive the quoins with a little more force, using the same all round; and lastly, with sufficient force to make the forme tight and firm enough to lift off the stone; then plane the forme again.

Locking-up a forme properly is a much more difficult operation than is generally imagined: indeed, so much care is

* I use the word "gutters" here, because in book-houses this portion of the furniture is called the gutters, although in reality it is the furniture of the backs. What is called the backs in book-houses is between the pages on each side of the long cross.

required that it is seldom we find a compositor persevering enough or sufficiently skilful to do it properly. If locked-up with greater force at one side than the other, most probably the cross-bar will bend, and the forme will be crooked; if locked-up too slack, there is a fear of its falling through, or of type being "drawn" by the rollers; and if locked-up too tight the pages may spring. In fact, if not locked-up with an even pressure all round, the pages are liable to "hang," the only proper remedy for which is to unlock the forme and do the work over again.

Before lifting the forme off the stone, raise it a little and observe carefully if any letters, &c., are loose and likely to fall out. If the forme "lifts," take it from the imposing-stone to the proof-press. In small offices the compositor pulls the proof, but in large offices this is done by the "proof-puller."

LAYING-UP AND LOCKING-UP FORMES FOR CORRECTION.

In different houses different systems of laying-up and locking-up formes for correction are pursued. In some establishments and companionships the laying-up goes round to each by turn, and the one who has laid-up locks-up also. In other houses the first in a sheet, having corrections, lays-up the forme, and the last having corrections locks-up, providing either has more than half-a-page at the beginning or end: but if a compositor is both first and last in a sheet, he either lays-up or locks-up—he does not do both. In other places where the line-book is passed, the compositor whose turn it is, according to the imposition scale, to impose, takes the entire charge of such sheet for a stated time—say a fortnight—and he both lays-up for corrections and locks-up, besides having had to impose the sheet; and he must see that it is safe from damage during the time he has charge of it. This system is good, as the compositor is more careful that all goes right with his sheet than he would were he not responsible for it.

GENERAL REMARKS.

The compositor must take particular care of his copy, and be able to produce it instantly when it is wanted.

All superfluous sorts, leads, quadrats, &c., that may have been turned out in distributing any jobs or sheets, if they will not be required for the work in hand, must be given to the store-keeper.

When any work is finished the compositors must clear away all head-lines and other materials, and if the type be not

required for the next work, if it be leaded, must be unleaded, and tied up in convenient sized pages, and given to the store-keeper.

In making-up sticks great care should be exercised that they may be exactly of the same measure as the sticks of other compositors on the same work. It is best to make sticks up to a line of pica m's set thus $\Xi \Xi \Xi \Xi$, just sufficiently tight to allow the line to move easily.

No compositor ought to take sorts out of any case without permission, neither ought he to withhold permission to anyone to take sorts that he may have in abundance and not require.

When receiving cases from the overseer, the compositor ought to see that they are in a proper condition, or point out anything he may see wrong with them; and he must return his cases, when done with, clean and free from pie.

Compositors must abstain from holding unnecessary conversation with each other, and from doing anything which may cause annoyance to their companions.

COMPANIONSHIPS.

I AM not certain whether I ought to include all the systems pursued in different book-offices in London under the head of Companionships, because, properly speaking, there are no companionships in many of the smaller houses; but I will here give for the guidance of those who may go into a book-printing establishment in London for the first time an idea of the modes of working there, hoping by doing so to preserve them from much unnecessary embarrassment.

THE LINE-BOOK.

The system adopted in some of the smaller houses is for each compositor to make-up and impose his own pages,* the making-up being passed from one compositor to the companion who follows him, accompanied by the line-book, which I will endeavour to explain as briefly as possible. We will suppose that Messrs. Pearson, Pain, Tooley, and Robertson are formed

* "In this system the compositor having to make-up his own pages is more likely to acquire a thorough knowledge of this branch of the business than under the plan next to be described [the Clicking System]; but the latter is probably more expeditious, as it saves the time lost in passing the make-up."—*Southward's Practical Printing*.

into a companionship to get out a certain work. Having filled their cases with the type required, and received copy from the overseer, they start composing. Pearson having first "take," so soon as he has finished it commences the making-up, the length of page being usually given by the overseer. For illustration, I will say the pages are thirty-three lines long. Pearson makes-up four pages, and passes twelve lines to Pain, who has the second "take." He also passes the gauge of the pages and the running-head and white after the head with the lines. With the making-up, the compositor who has the first pages in the work must make out the line-book, thus:—

LINE-BOOK—THE RHINE.

Pearson to Pain, fol. 5—5th in Sig. B.

		To the good.			To the bad.	
Pearson	...	12	|	Pain	...	12

Pain makes-up five pages, and has fourteen lines over, but being twelve lines "to the bad," he is not allowed to borrow lines to make-up the next page, but must pass the fourteen lines to Tooley, who follows him in copy. By passing fourteen lines to Tooley, and deducting the twelve lines he is "to the bad" from them he finds himself two lines "to the good." He accordingly fills up the line-book thus, and passes the making-up:—

Pain to Tooley, fol. 10—10th in Sig. B.

Pearson	...	12	|	Tooley	...	14
Pain	...	2	|			
		<hr/>				<hr/>
		14				14

Tooley makes-up six pages, and has three lines over, which he passes to Robertson; being fourteen lines "to the bad" he deducts the three lines he has passed, which leaves him eleven lines "to the bad." The line-book is then passed with the making-up, and stands thus:—

Tooley to Robertson, fol. 16—16th in Sig. B.

Pearson	...	12	|	Tooley	...	11
Pain	...	2	|	Robertson	...	3
		<hr/>				<hr/>
		14				14

Robertson makes-up one page to complete the sheet, and at once orders his companions to "lay down pages." The pages are laid down, each in its proper place, and the quoin-drawer overseer places chases and furniture round them. Tooley, who

has most pages in the sheet, must impose, and likewise make out and fill up the imposition scale, in this form:—

Sigs.	Pearson	Pain	Tooley	Robtson		Imposed by
B	4	5	6	1		Tooley
C						
D						
E						

Where the companionship is small and the compositors well acquainted with their business, this system is good; but it is not suitable for large companionships, too much time being usually wasted by mistakes in entering or passing lines, &c.

The compositor in making out his "bill," when working in a companionship of this description, writes the number of pages he has made-up and imposed, and the pages he has made-up but not imposed he writes on account, thus—

The Rhine, Sig. B 4 pp.	...	...	£0	4	0
Andrew Trudger, Sig. B 6 pp.		Sig. C 10 pp.	1	4	0
On account The Rhine 8 pp.			0	8	0

J. PEARSON. £1 16 0

Another system, adopted chiefly on Monthly Magazines, is to write on account, deducting the account line each week, and also after the General Bill is made out; and the compositor makes out his bill thus:—

Jan. 16, 1874.					
16 pp. The Observer	...	£1	4	0	
On account The Bar	...	4	0	0	

		5	4	0	
Deduct on account, Jan. 9		3	10	0	

J. GOULD. £1 14 0

The General Bill having been made out, the compositor writes his bill in full, and deducts the whole amount he has written on account, as follows:—

Jan. 23, 1874.			
12 pp. The Observer	...	£0	18 0
1 p. 4to demy circular, brevier		0	5 6
General Bill—The Bar	...	5	0 7
		<hr/>	
		6	4 1
Deduct on account, Jan. 16		4	0 0
		<hr/>	
J. GOULD.		£2	4 1

When the Magazine or other work is finished, each compositor looks carefully over the sheets and marks the whole of the matter he has composed; and, when all have "marked," the sheets are given to one of the compositors in the companionship, who undertakes to make out the General Bill. He first of all finds out how many pages of each different sort of type the magazine contains, and puts down the number and value of each in separate lines. He then with a page-cord measures each compositor's matter, first the small pica, then the long primer, and lastly the brevier, putting down the amount of each, and giving the total amount in the

GENERAL BILL—THE BAR FOR JANUARY.
THIRTEEN SHEETS.

38 pp. brev. at 3s.	£5 14 0	Pearson	...	...	£5 19 0
103 pp. sm.pica, 1s.8d.	8 11 8	Gould	...	...	5 0 7
67 pp. l.p. 2s.1d.	... 6 19 7	Gardiner	...	...	5 2 4
		Searle	...	...	5 3 4
<hr/>		<hr/>			
£21 5 3		£21 5 3			

THE CLICKING SYSTEM.*

When companionships are blessed with honest, upright, and hard-working clickers, who do not endeavour to favour one companion, and be a stumbling-block in the way of another; who treat every one alike, and act for the good of the "ship,"

* I once assisted at a "rush" where the line-book and clicking were combined on the same work. The work was given to the two companionships by a chapter each, and as each chapter ended a page the working of the two systems could easily be kept separate. I understood, however, from the clicker (Mr. Cox, afterwards Secretary of the London Society of Compositors) that such a "mix" was very seldom resorted to.

this system is the best I am acquainted with both for the compositor and his employer. Under a clicker, the compositor, on his lines, is enabled to earn greater wages, through being able to remain in his frame until wanted for the purposes of correcting, and not losing time in the various ways unavoidable in connection with other systems, having in fact, little to do but distribute and set; and his employer gains by a greater amount of work being turned out, and by the work being done with more uniformity; and the pages, furniture, &c., being properly made-up saves time in making ready at machine or press.

There are several methods of paying clickers, however, some being, I venture to say, grossly unjust; one of which is to pay the clicker the same number of hours as the compositor who makes the highest in the companionship. This method affords scope to an unscrupulous clicker to so manage the copy that the quickest workman—and there is sometimes an immense difference in the quickness of comps. belonging to the same companionship—shall have the most straightforward and fattest copy, and he can in many other ways assist the swiftest worker, so that he (the clicker) may have the greater number of hours to write, the consequence being that the other members of the companionship “share the loss.” There were other unfair methods which I hope are now discontinued, and of which I need not speak. Clickers, however, are often spoken of in disrespectful terms, simply because some compositors do not properly understand the working of the system, and endeavour to make out that there are too many lines to set for each hour’s work, or that the clicker is not punctual and industrious, or robs his companions by charging what he is not entitled to. I believe, in many instances, if men did but cast-up their hours’ work, and note the doings of their clicker, they would find themselves at fault, although they might not confess it. I have not worked under many clickers; but those I have been placed under were, I considered, most upright, energetic, and honest. Certainly, I recollect a clicker “making the bill pay” by writing, for several weeks, a few sheets more than were composed, leaving his companions at the end of that time considerably in debt. Of course, this could not be continued long; and no clicker with the slightest pretension to honesty would attempt it.

When a new companionship is formed, I think it would be best to allow the members to choose their own clicker; * for it is certain they would fix upon an honest, industrious, and expert workman.

* Since publishing my first edition this has become the rule in “fair” offices.

I will try to give a short explanation of the system, and as briefly and clearly as I can. The clicker having had the copy of a work put into his hands, requests his companions to get in letter. While they are doing so, he prepares himself to set the notes, chapter-headings, poetry, head-lines, &c., required for the first sheet. As soon as the members of the "ship" have sufficient letter in, they apply to the clicker for copy. When the clicker finds that a few "takings" are finished — by his companions applying for a second "take"—he commences to make-up. He goes to the first in the making-up, takes his galleys of matter, the lines of which he either counts or measures with a type-guage, making a note of them; and proceeds in like manner with all the companions, keeping an account of the number of lines composed by each, so that he may be able to check their bills when sent in. When sufficient for a sheet has been made-up he lays down the pages on the stone, and acquaints the quoin-drawer overseer of the same. That gentleman at once puts furniture and chases round the pages. The clicker then takes off the cords, locks-up the formes, and takes them to the proof-puller. When the proof comes out it is given to the clicker; and he in turn hands it to the first in the sheet, who lays-up, unlocks, and corrects his portion. The proof then goes round regularly as before explained; and, if it be the system of the house, the last in the sheet locks-up the formes, and takes them to the proof-puller to be pulled for revise.

At the end of the week each companion gives his bill to the clicker, thus—F. BRIERLEY, 54 hours. And the clicker makes out his bill in this manner:—

COMPANIONSHIP.				BILL.			
	hours.	£	s. d.		£	s. d.	
Brierley .	54	2	2 9	To 20 sheets "The			
Lewis .	41	1	12 5½	Trudger," from			
Smale .	50	1	19 7	sig. B to X, at			
Mathews.	44	1	14 10	16s. per sheet .	16	0 0	
Coulson .	39	1	10 10½	Author's Correc-			
Burroughs	44	1	14 10	tions and Press			
James .	42	1	13 3	Proofs . .	2	5 0	
Turner .	50	1	19 7	On account on			
Suter .	45	1	15 7½	galley's . .	1	13 2½	
Blackie .	40	1	11 8				
Pain, Clicker	54	2	2 9				
	503	19	18 2½		19	18 2½	

At 9½d. per hour.

To find the number of lines to the hour you must find the number of ens there are in a line, and then divide 1000 by that number, which we will take to be 50 ens, thus—

$$\begin{array}{r} \text{ens in line } 50 \overline{)1000} \\ 20 \end{array}$$

This would make the number of lines to the hour 20; but should the work in hand be a solid reprint, it is usual to put on a line and sometimes two, which would make the hour's work, of course, 21 or 22 lines. If on the other hand the work is leaded and manuscript, a line or two is deducted to compensate the compositor for the extra trouble of inserting the leads.

By reducing the amount of the general bill to pence, and dividing by the number of hours written, we arrive at the price per hour, viz., 9½d. It will be seen, that I have put the clicker down for the full amount of hours the line is supposed to have been on. Should the clicker however lose any time, by coming late, or in any other manner, it would have to be deducted.

In some unfair offices, according to *Southward's Practical Printing*,—"There is a system of organising three classes of companionships. The first class companionships have all the best kind of work, and are paid sevenpence or eightpence per hour. The second class take the medium work, and are paid sixpence per hour. The third and lowest class get all the inferior work, for which they are paid fivepence per hour. In such cases the men are not paid for the fat, which is claimed by the employers as remuneration for the clicker's labour.* A new man is generally put in the third class companionship. If he is a quick and clean workman he is advanced to the second class, and if he deserve it, he is ultimately removed to the first class. The first class is kept constantly engaged; if there is a scarcity of work some is taken from the second class."

HOW TO CAST-UP A WORK.

Set a line of m's thus $\Xi \Xi \Xi$, in a stick, to the measure of the work, and double them. Should 20 ems and a thick space make the line it will be counted 41 ens, the thick space counting as an en, but anything under the thick space is taken no note of. Then count the number of lines in a page, if the matter be solid, including heads and whites; but if the page be leaded set a line of quadrats or m's to the full length of the page, including the white at the bottom, and count them. For illustration, I will take the length of the page at 45 ems, had it

* In such houses the compositors will be on their "bare lines," the "house" claiming heads and whites, as well as all "fat."

been 45 ems and an en it would have been called 46 ems long—the en counting an em in the length; but anything less than an en is dropped.

CAST-UP.

45 ems long.
40 ens wide.

1800 ens in a page.
16 pages in a sheet.

10800
1800

28800=29 thousand ens in sheet.
7½d. per 1000.

203
14½

12)217½d. per sheet.

18s. 1½d.

1 0 per sheet extra if there are notes.

1 0 per sheet extra if there is "mixture."

£1 0 1½

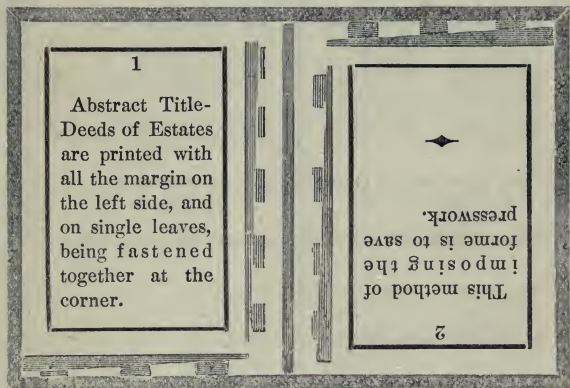
It will be seen that 28,800 is put down at 29 thousands; but 28,499 ens would count only 28 thousands: 500 or more carrying the 1000, under 500 not being charged.

"Mixture" is the insertion in the text of paragraphs in type of a different size from the body of the work.

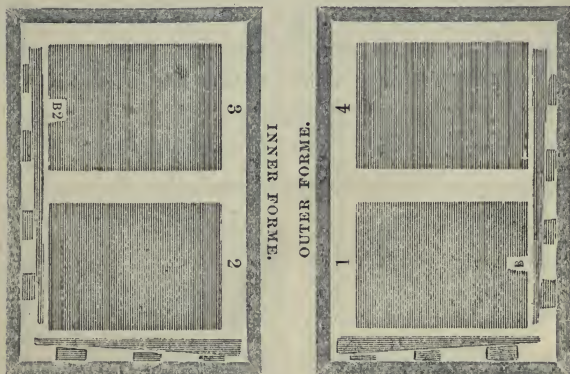
NAMES OF VARIOUS SIZES OF BOOKS.

Folio denotes a sheet of paper folded into two leaves, making four pages; *quarto*, 4to, is a sheet divided into four leaves, or eight pages; *octavo*, 8vo, a sheet into eight leaves, or sixteen pages; *duodecimo*, 12mo, a sheet into twelve leaves, or twenty-four pages. So, also—sixteens, 16mo; eighteens, 18mo; twenty-fours, 24mo; thirty-twos, 32mo; forty-eights, 48mo; sixty-fours, 64mo, are the several designations of sheets when folded into sixteen, eighteen, twenty-four, thirty-two, forty-eight, and sixty-four leaves, each making twice the number of pages.

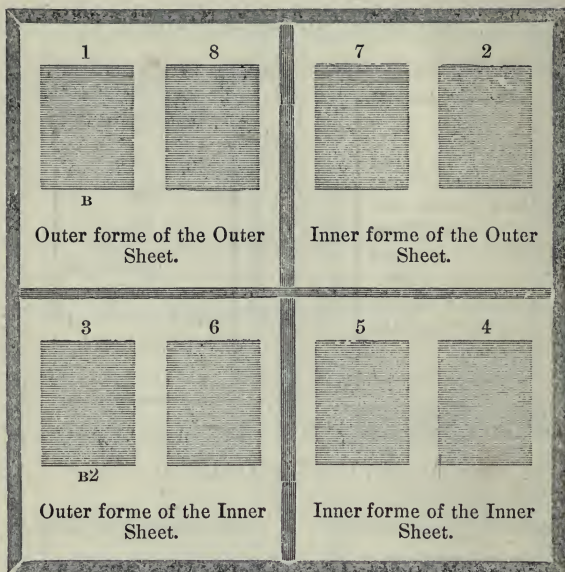
DIAGRAMS OF IMPOSITIONS.



Abstract Title-Deeds of Estates.

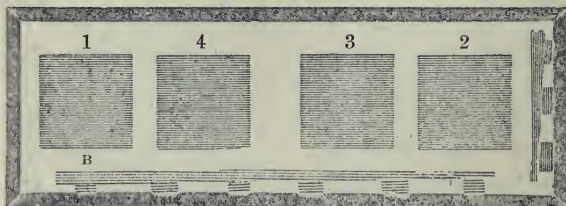


A Single Sheet of Folio.



Two Sheets of Folio, Quired, or lying one in another.

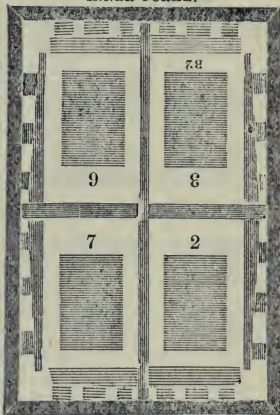
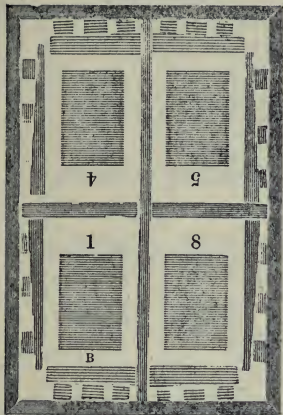
Imposing in quires may be carried on to any extent by observing the following rule:— Suppose the work to consist of 32 pages, or 8 sheets, then, any two pages whose united numbers make 33, are to be imposed together; as, 1, 32—19, 14—12, 21, &c. There must be a little less furniture in the backs of the inner sheets than in the outer ones.



A Half Sheet of Quarto, Imposed as a Slip.

OUTER FORME.

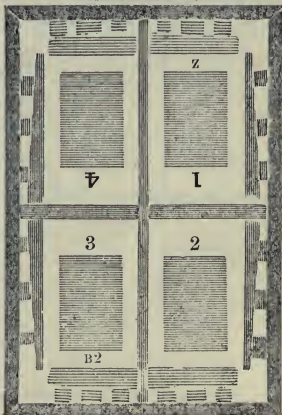
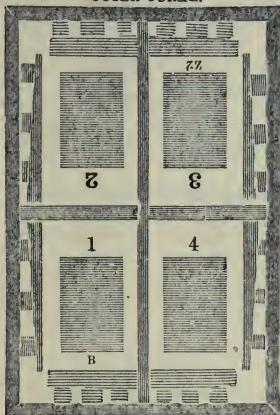
INNER FORME.



A Sheet of Common Quarto.

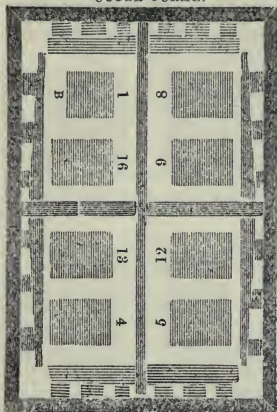
OUTER FORME.

INNER FORME.

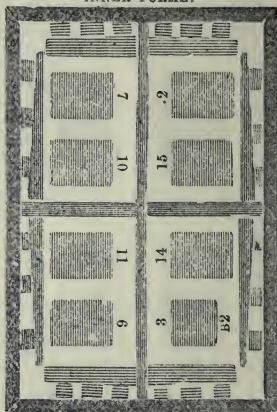


Two Half-Sheets of Quarto, worked together.

OUTER FORME.

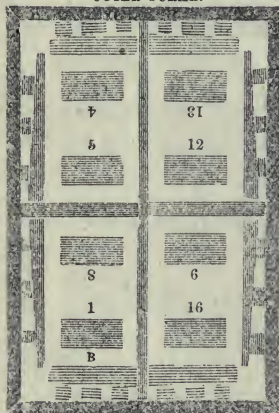


INNER FORME.

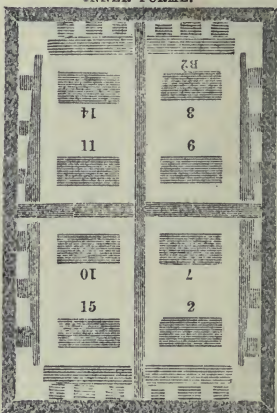


A Sheet of Common Octavo.

OUTER FORME.

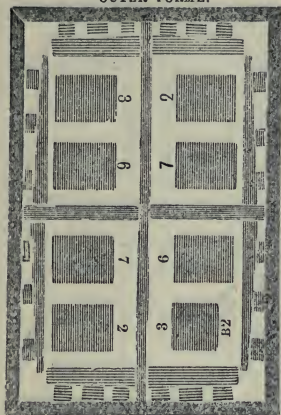


INNER FORME.

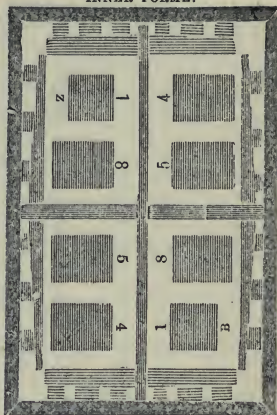


A Sheet of Octavo, the Broad Way, commonly used
in Works of Music.

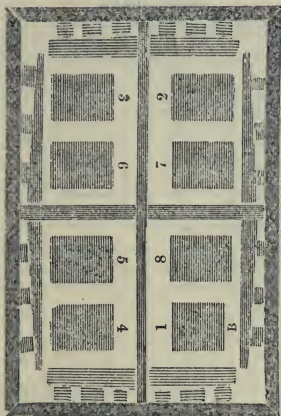
OUTER FORME.



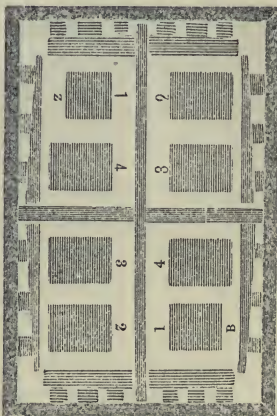
INNER FORME.



Two Half-Sheets of Common Octavo, worked together.

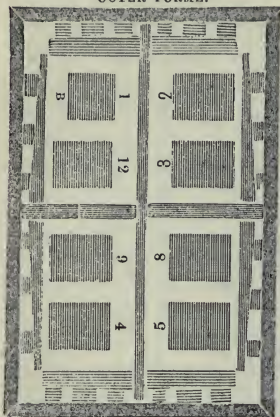


Half a Sheet of Common Octavo.

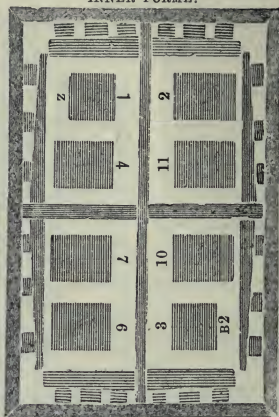


Two Quarters of a Sheet of Octavo, worked together.

OUTER FORME.

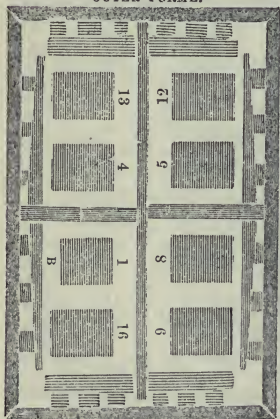


INNER FORME.

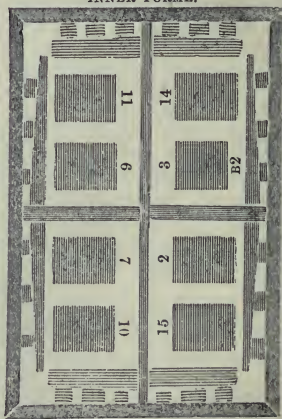


A Sheet of Octavo, 12 of the work, and 4 of other matter.

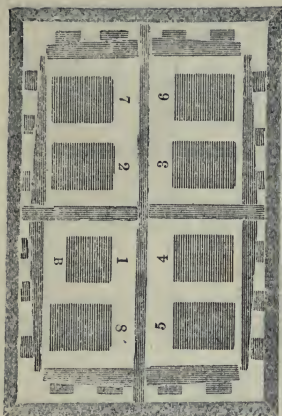
OUTER FORME.



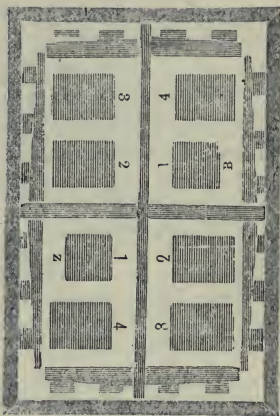
INNER FORME.



A Sheet of Octavo, Imposed from the Centre.



A Half-Sheet of Octavo,
Imposed from the Centre.

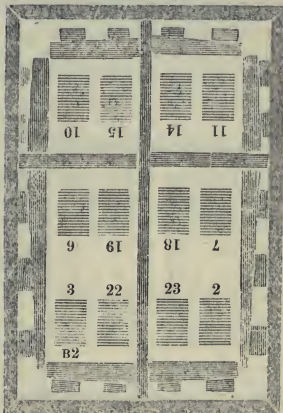


Two Quarters of a Sheet of
Octavo, Imposed from the Centre.

OUTER FORME.

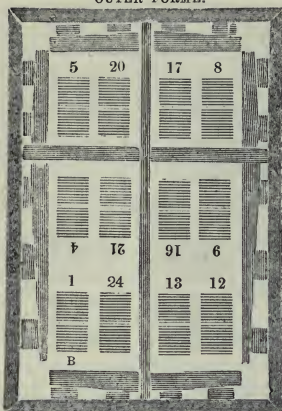


INNER FORME.

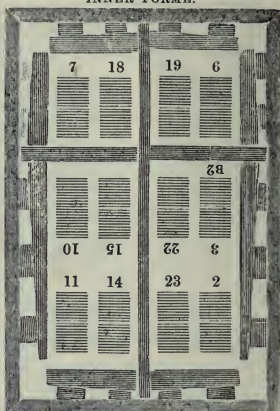


A Sheet of Twelves.

OUTER FORME.

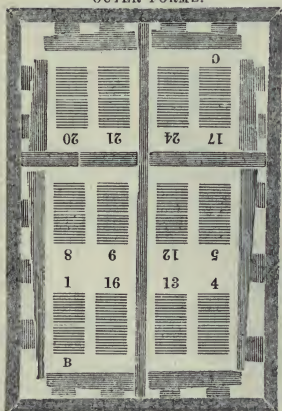


INNER FORME.

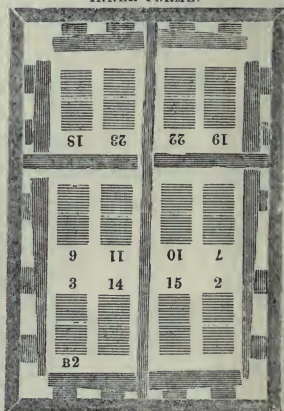


A Sheet of Twelves, without cutting.

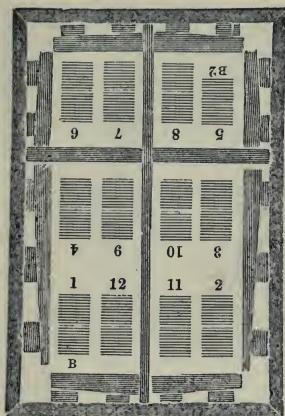
OUTER FORME.



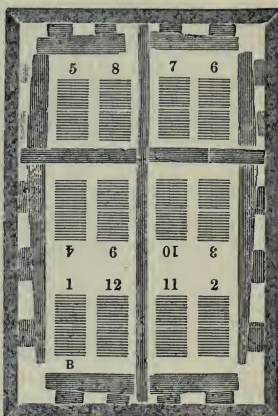
INNER FORME.



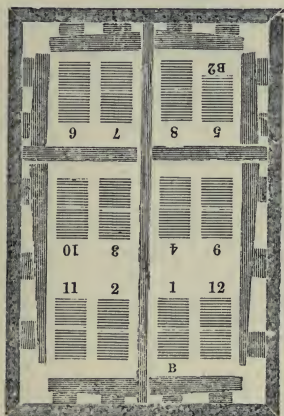
A Sheet of Twelves, with Two Signatures.



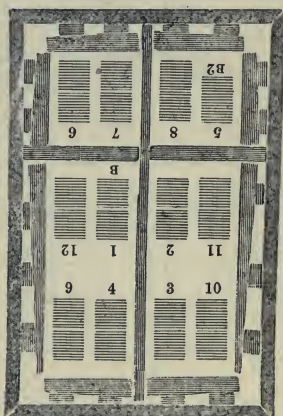
A Common Half-Sheet of
Twelves.



A Half-Sheet of Twelves,
without cutting.



A Half-Sheet of Twelves.

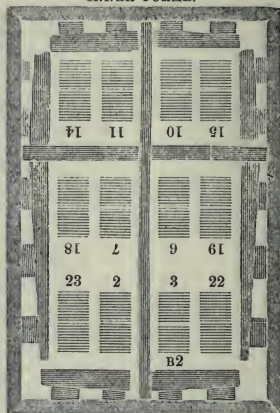
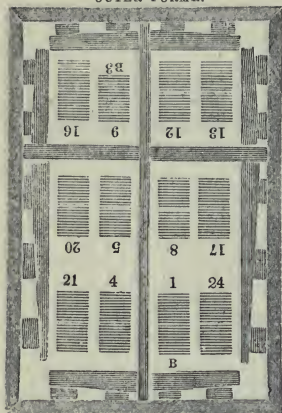


A Half-Sheet of Twelves.

Different methods of Imposing, from the Centre.

OUTER FORME.

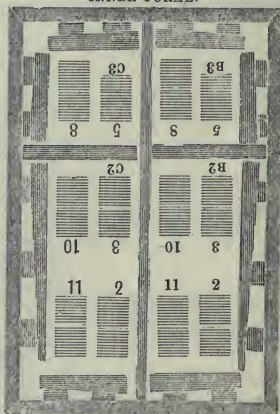
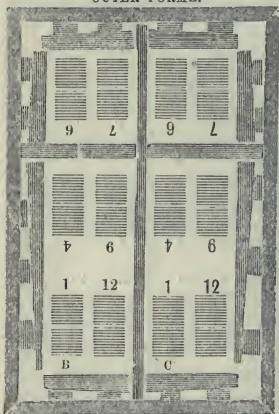
INNER FORME.



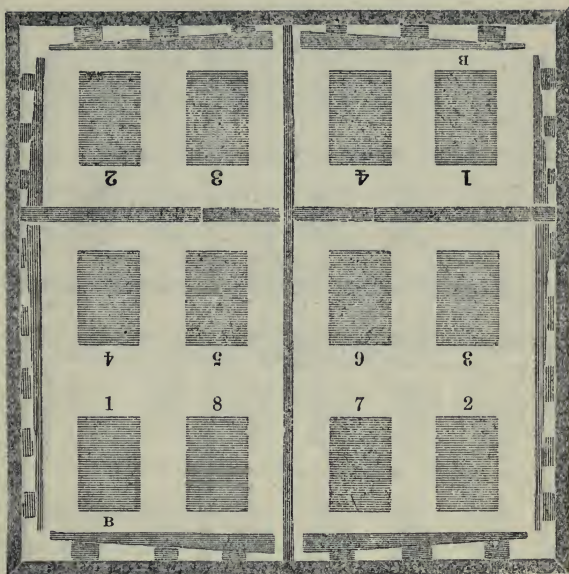
A Sheet of Twelves, Imposed from the Centre.

OUTER FORME.

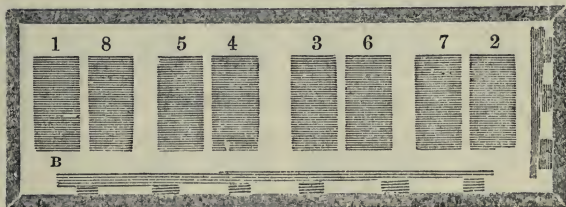
INNER FORME.



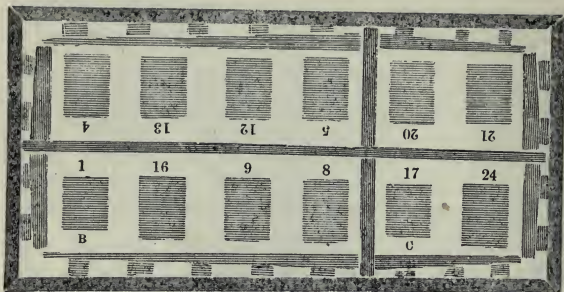
Two Half-Sheets of Twelves, worked together.



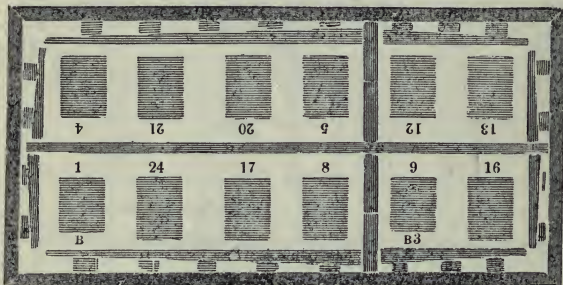
A Half Sheet of Twelves, 8 of the work,
and 4 of other matter.



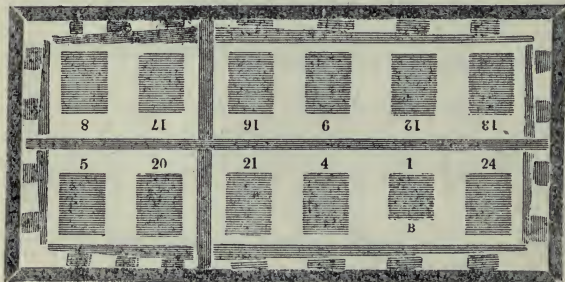
Eight Pages, Imposed as a Slip



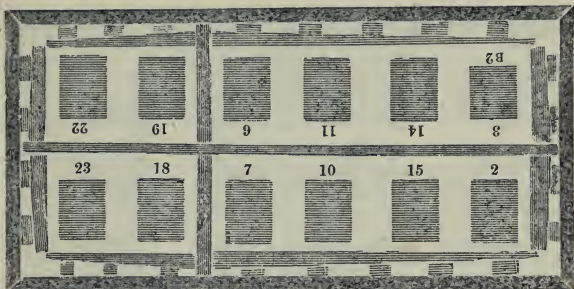
Outer forme of a Sheet of Long Twelves, without Inset.



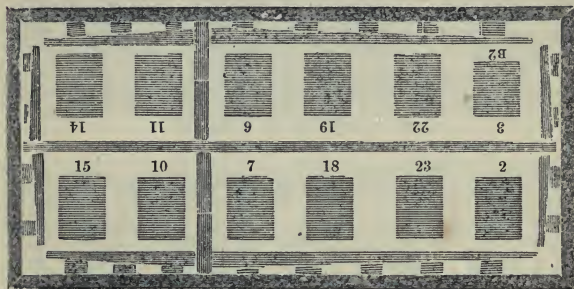
Outer forme of a Sheet of Long Twelves, with Inset



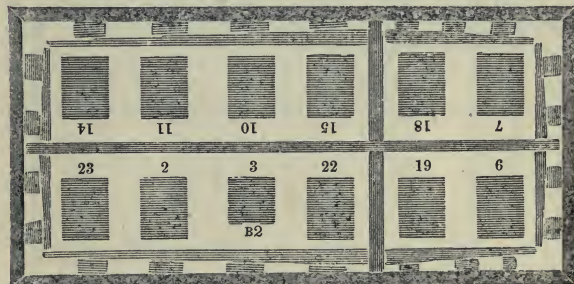
Outer forme, Long Twelves, to be folded without cutting.



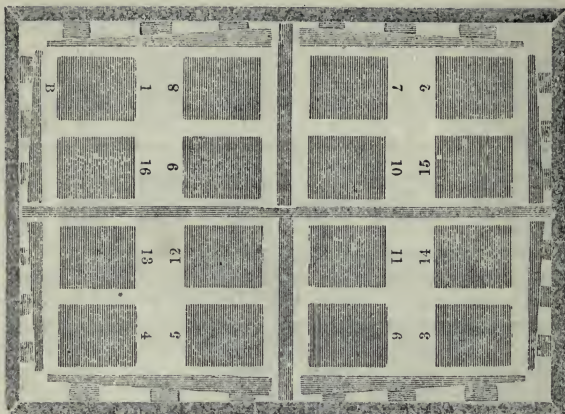
Inner forme of a Sheet of Long Twelves, without Inset.



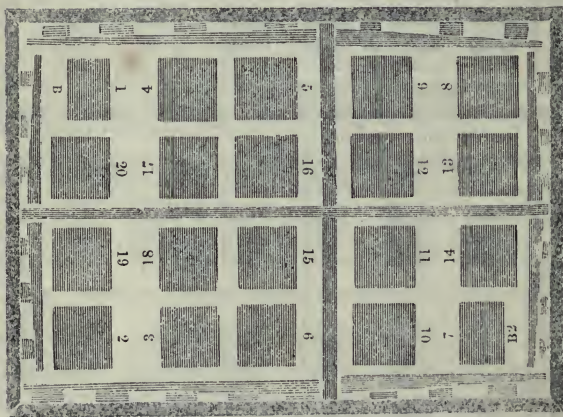
Inner forme of a Sheet of Long Twelves, with Inset.



Inner forme, Long Twelves, to be folded without cutting.

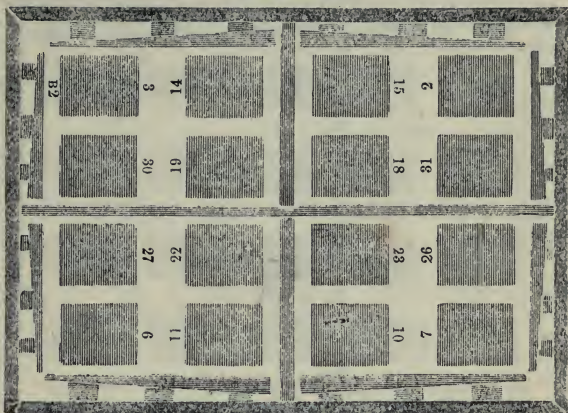


A Half-Sheet of Sixteens.

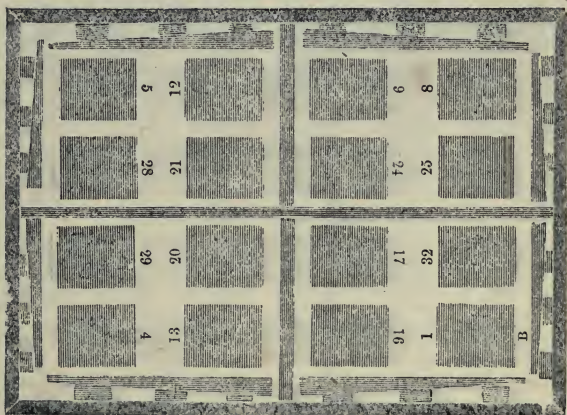


A Half-Sheet of Twenties.

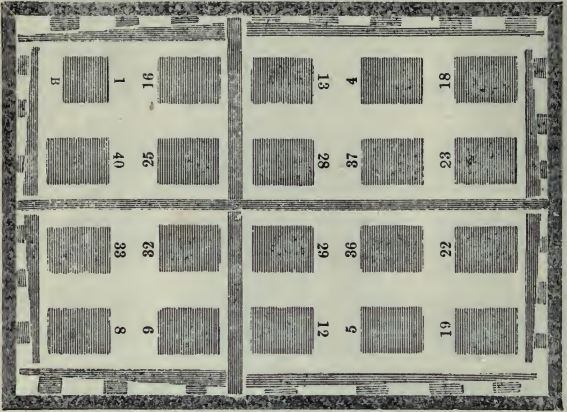
INNER FORME



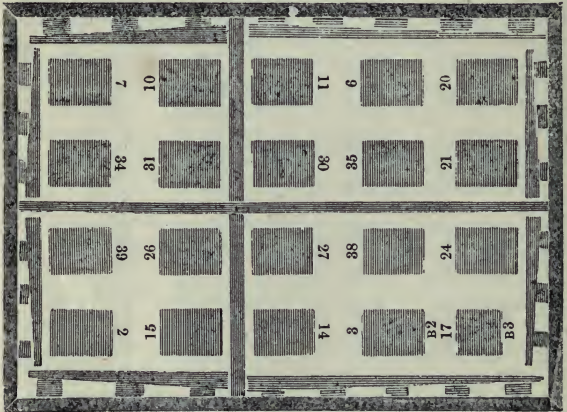
OUTER FORME.



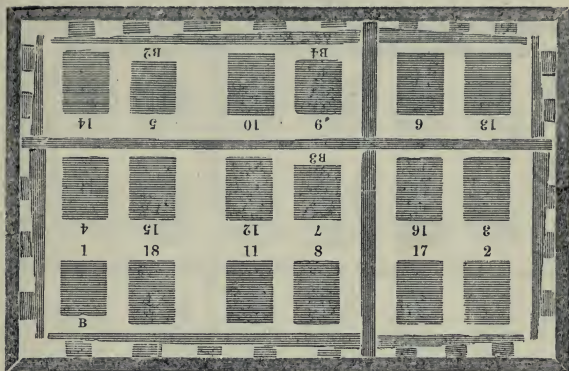
OUTER FORME.



INNER FORME.

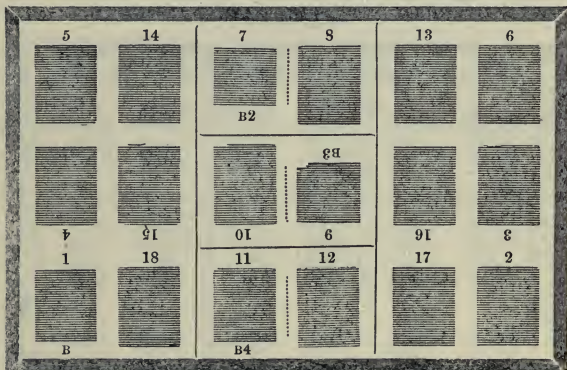


A Sheet of Twenties



A Half-Sheet of Eighteens.

When the white paper is worked off, transpose pages 11 and 8 to the place of 7 and 12; and pages 7 and 12 to the place of 11 and 8: this done, the sheet will fold up right.

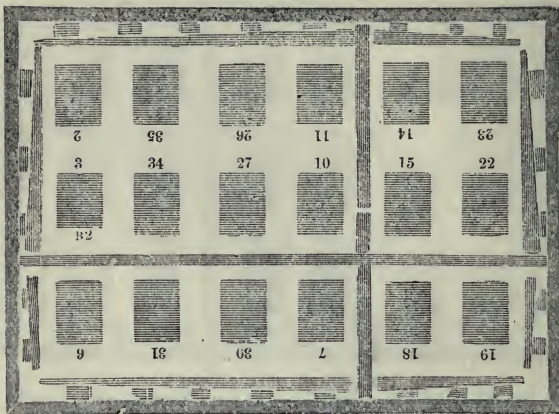


A Half-Sheet of Eighteens, without transposition.

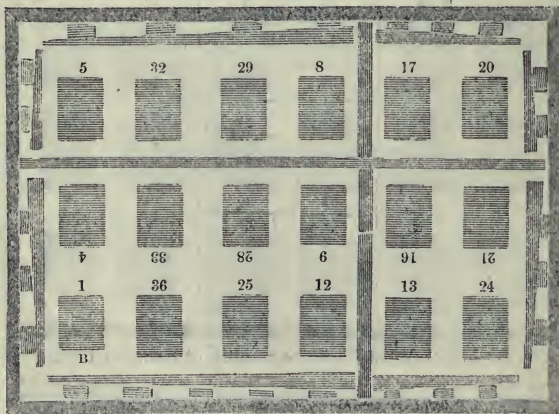
This imposition is made so that there need be no transposition of pages during the working off. It is an objectionable one, however, for it leaves, when cut up, three single leaves to be pasted in, instead of one. The lines inside the chase show where the sheet has to be cut before folding.

I should recommend that these impositions (Eighteens) be avoided altogether, and some more simple ones adopted, even when it may necessitate leaving a couple of blank pages at the end of a pamphlet, or of using a larger or smaller size of paper for the work.

INNER FORME.

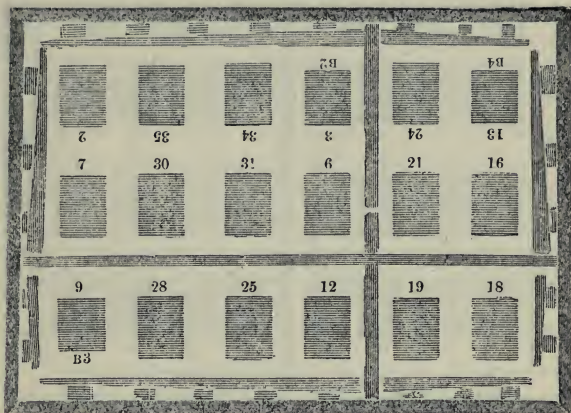


OUTER FORME.

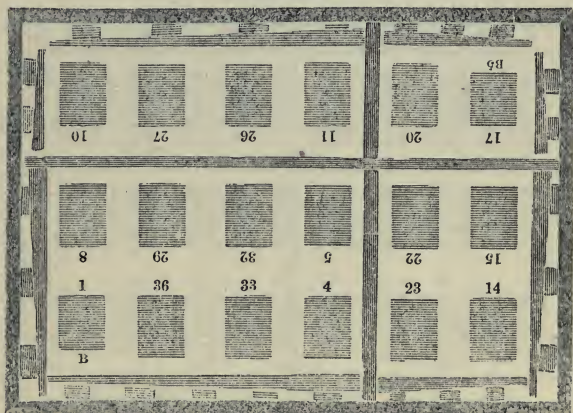


A Sheet of Eighteens, without cutting.

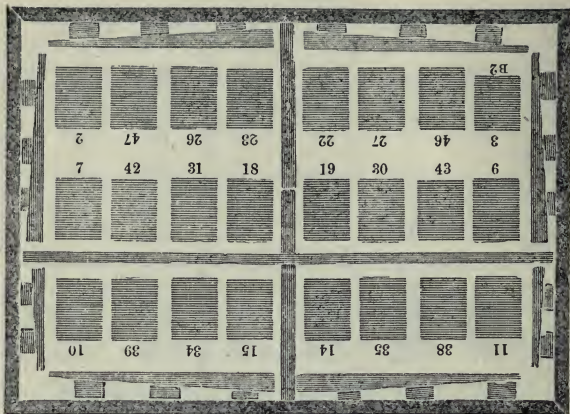
INNER FORME.



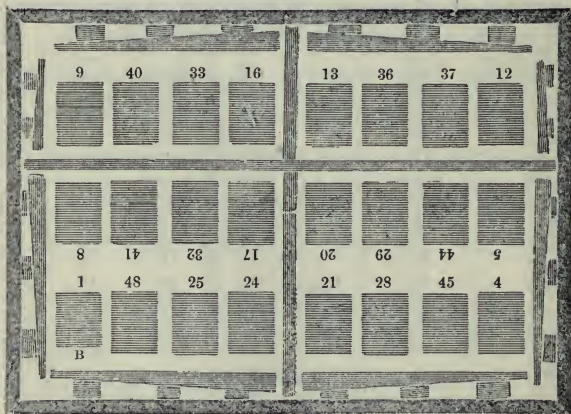
OUTER FORME.



INNER FORME.

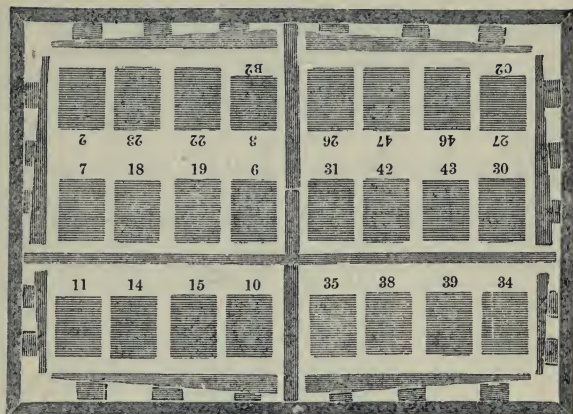


OUTER FORME

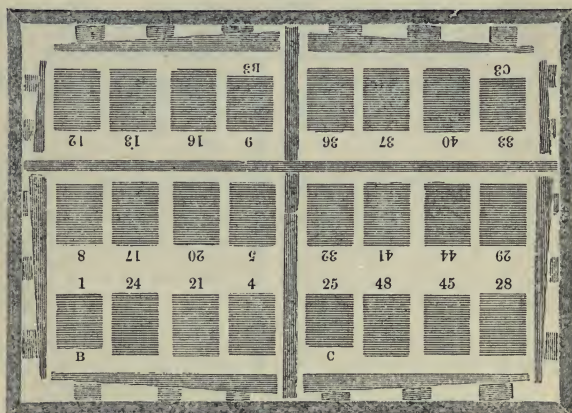


A Sheet of Twenty-Fours, without cutting.

INNER FORME.



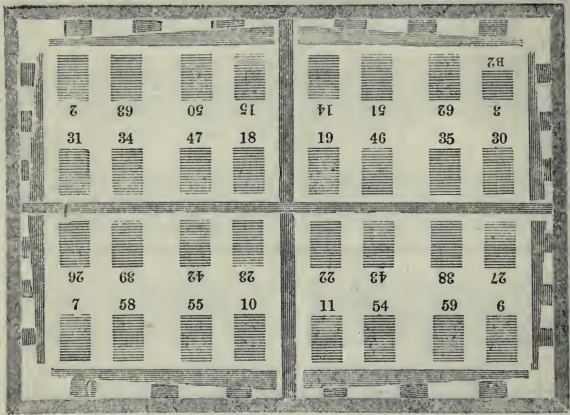
OUTER FORME.



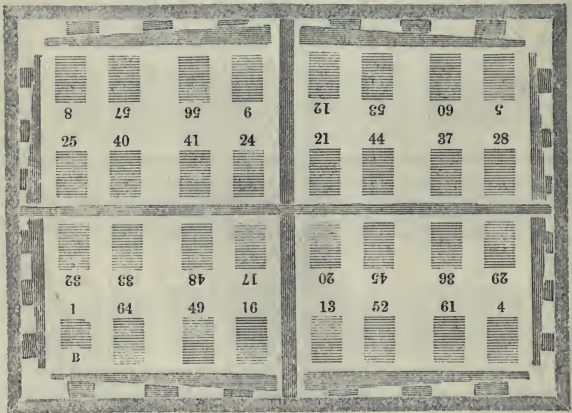
A Sheet of Twenty-Fours, with Two Signatures.

THE LETTER-PRESS PRINTER.

INNER FORME.

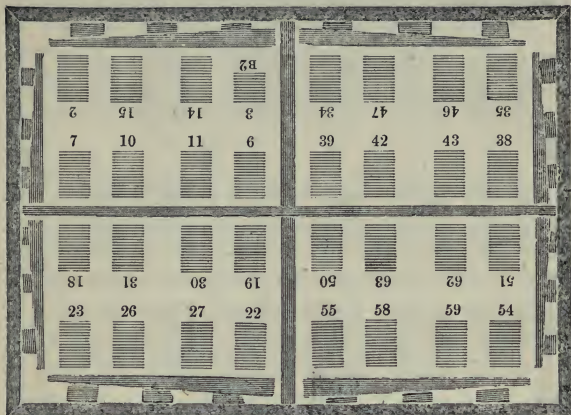


OUTER FORME.

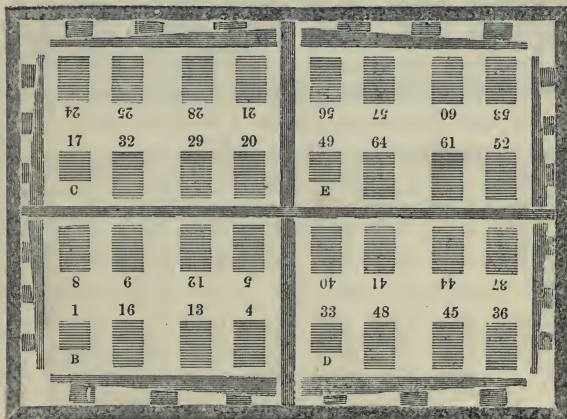


A Sheet of Thirty-Twos, without cutting.

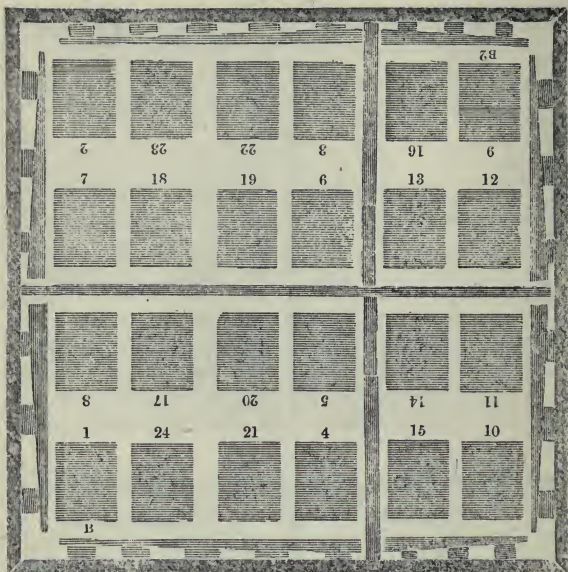
INNER FORME.



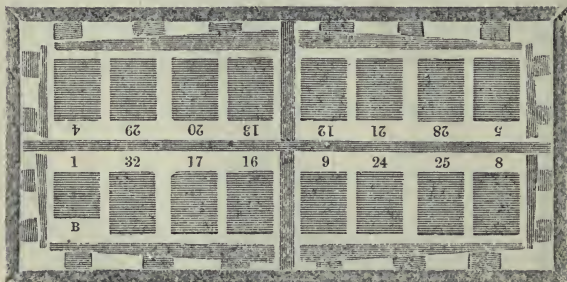
OUTER FORME.



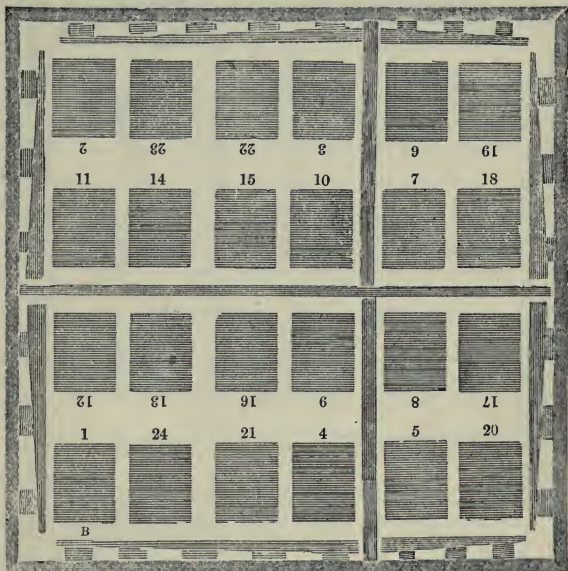
A Sheet of Thirty-Twos, with Four Signatures.



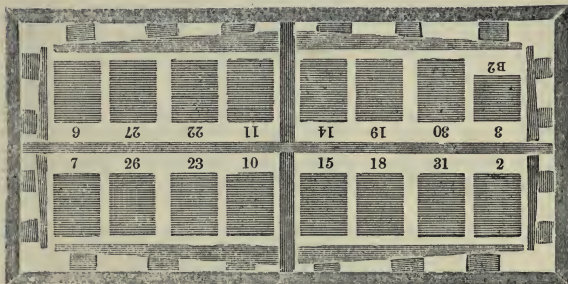
A Half-Sheet of Twenty-Fours, the Sixteen way.



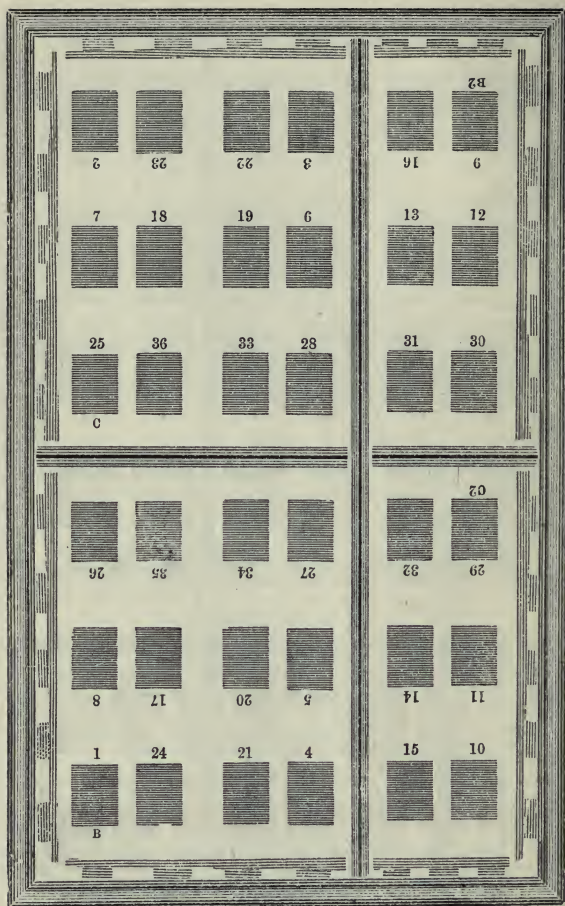
Outer form of a Sheet of Long Sixteens, without cutting.



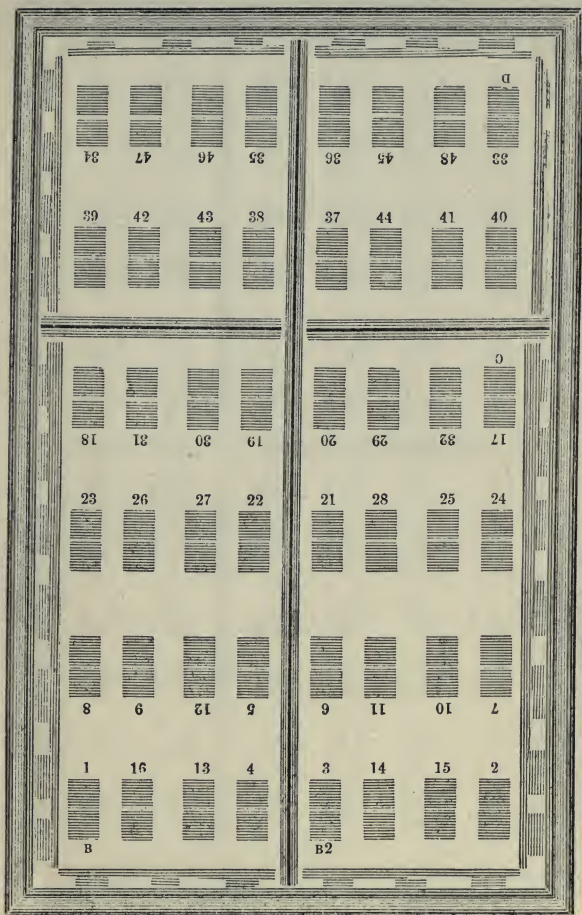
A Half-Sheet of Twenty-Fours, the Sixteen way,
to be folded without cutting.



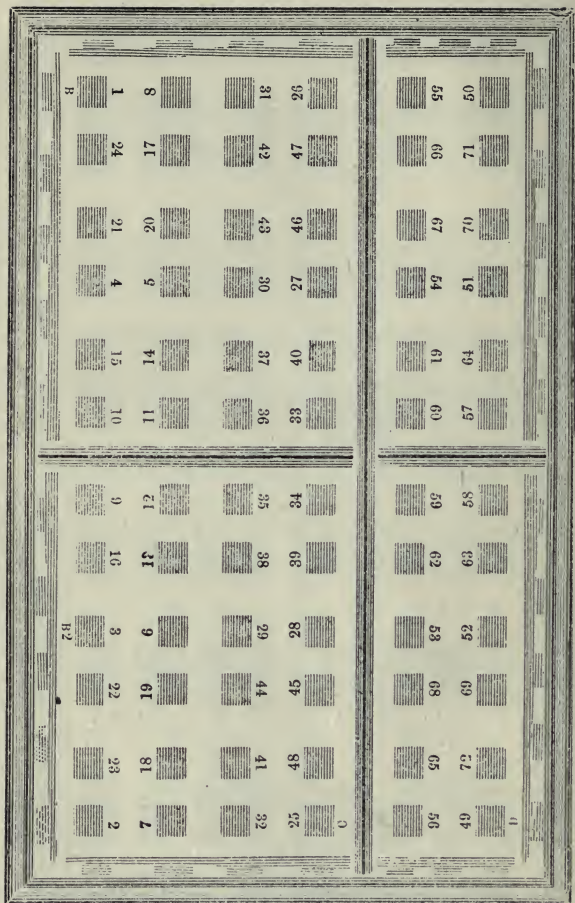
Inner form of a Sheet of Long Sixteens, without cutting.



A Half-Sheet of Thirty-Sixes, with Two Signatures.



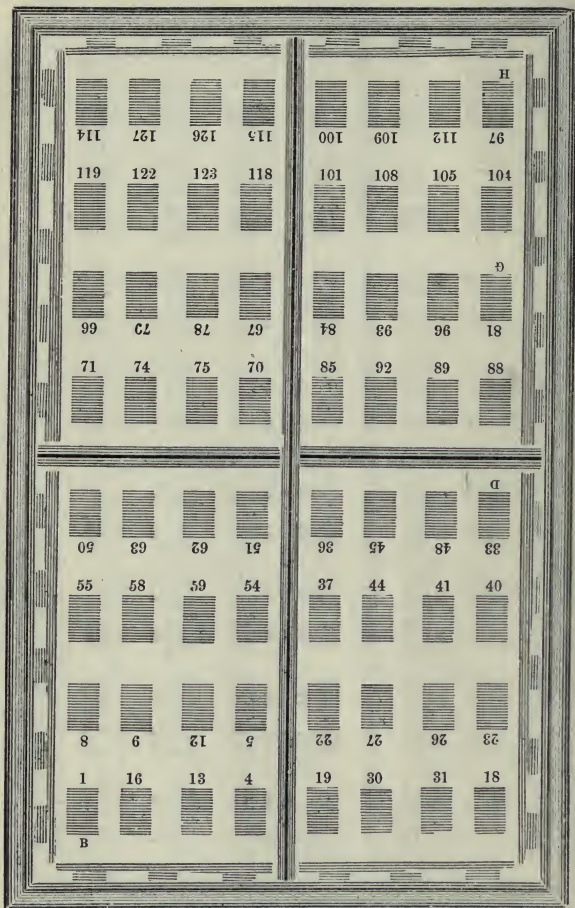
A Half-Sheet of Forty-Eights, with Three Sigs.



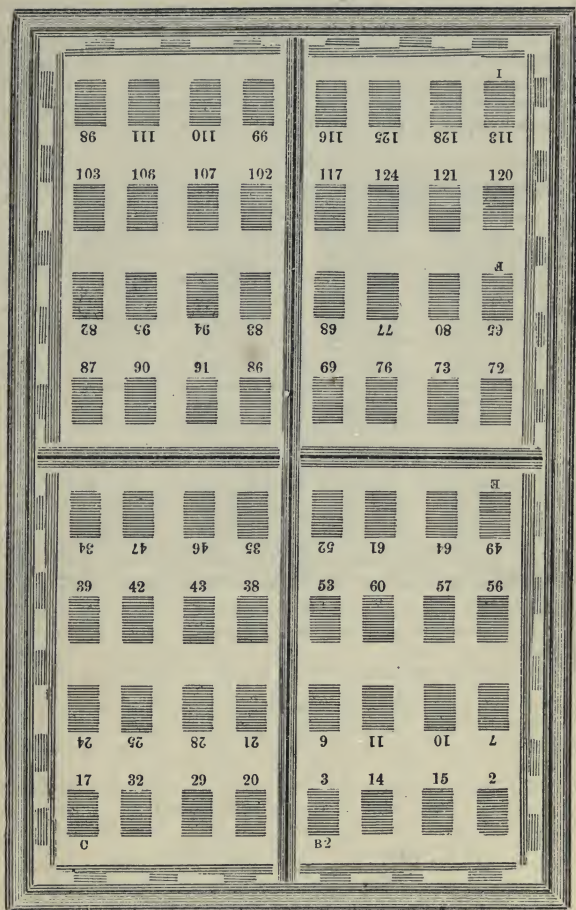
A Half-Sheet of Seventy-Tvos, with Three Signatures.

A											
2	91	41	3	06	62	23	21	81	13	03	61
7	10	11	6	21	28	25	24	23	26	27	22
99	29	09	39	88	37	27	63	04	14	44	28
49	64	61	52	35	46	47	34	33	48	45	36
B											
99	29	09	39	88	37	27	63	04	14	44	28
49	64	61	52	35	46	47	34	33	48	45	36
C											
99	29	09	39	88	37	27	63	04	14	44	28
49	64	61	52	35	46	47	34	33	48	45	36
D											
99	29	09	39	88	37	27	63	04	14	44	28
49	64	61	52	35	46	47	34	33	48	45	36
E											
99	29	09	39	88	37	27	63	04	14	44	28
49	64	61	52	35	46	47	34	33	48	45	36
F											
99	29	09	39	88	37	27	63	04	14	44	28
49	64	61	52	35	46	47	34	33	48	45	36
G											
99	29	09	39	88	37	27	63	04	14	44	28
49	64	61	52	35	46	47	34	33	48	45	36
H											
99	29	09	39	88	37	27	63	04	14	44	28
49	64	61	52	35	46	47	34	33	48	45	36

A Half Sheet of Ninety-Sixes, with Six Signatures.



Outer forme of a Sheet of Sixty Fours, with Eight Sigs.

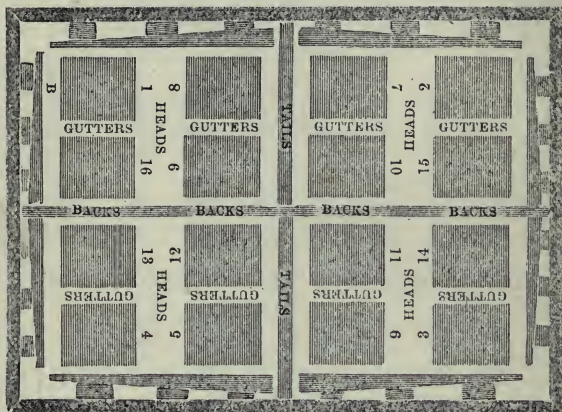


Inner forme of a Sheet of Sixty-Fours with Eight Sigs.

FURNITURE.

At the suggestion of several compositors I give measurements of furniture required in impositions. Although they have been very carefully made, it will be found advisable to test their accuracy with a sheet of the paper to be used before sending formes to press, as the sizes of paper differ a little occasionally.

DIAGRAM SHOWING GUTTERS, BACKS, HEADS, AND TAILS.



So that the following measurements may be better understood, I give the above diagram, to which those who are not thoroughly acquainted with the imposition of book-work will do well to refer when making-up furniture.

Royal 8vo.—26 ems wide, 46 ems long. Gutters $9\frac{1}{2}$ ems, backs 13 ems, heads 13 ems.

Royal 12mo.—22 ems wide, 38 ems long. Gutters $6\frac{1}{2}$ ems, backs 9 ems, heads 10 ems, off-cut $12\frac{1}{2}$ ems.

Royal 12mo.—19 ems wide, 36 ems long. Gutters 9 ems, backs 11 ems, heads 12 ems, off-cut 15 ems.

Royal 18mo.—17 ems wide, 31 ems long. Gutters 7 ems, backs $8\frac{1}{2}$ ems, heads 7 ems, off-cut 9 ems.

Royal 32mo.—14 ems wide, 26 ems long. Gutters $3\frac{1}{2}$ ems, backs $5\frac{1}{2}$ ems, heads 4 ems, tails 4 ems. This furniture is for pages made up to a longer length than usual.

- Demy 8vo.—24 ems wide, 41 ems long. Gutters $8\frac{1}{2}$ ems, backs 10 ems, heads $10\frac{1}{2}$ ems.
- Demy 8vo.—22 ems wide, 38 ems long. Gutters $10\frac{1}{2}$ ems, backs 13 ems, heads $13\frac{1}{2}$ ems.
- Demy 12mo.—19 ems wide, 35 ems long. Gutters 6 ems, backs 8 ems, heads 8 ems, off-cut 10 ems.
- Demy 18mo.—16 ems wide, 27 ems long. Gutters $5\frac{3}{4}$ ems, backs $7\frac{1}{2}$ ems, heads $6\frac{1}{2}$ ems, off-cut $8\frac{1}{2}$ ems.
- Demy 32mo.—12 ems wide, 21 ems long (same size page as "Compositor's Guide and Pocket Book.") Gutters 4 ems, backs $5\frac{1}{2}$ ems, heads $4\frac{1}{4}$ ems, tails 6 ems.
- Crown 8vo.—23 ems wide, 37 ems long. Gutters $7\frac{1}{2}$ ems, backs 8 ems, heads $7\frac{1}{2}$ ems.
- Crown 8vo.—20 ems wide, 35 ems long. Gutters $8\frac{1}{2}$ ems, backs 11 ems, heads $9\frac{1}{2}$ ems.
- Crown 12mo.—16 ems wide, 32 ems long. Gutters $5\frac{1}{2}$ ems, backs 7 ems, heads 6 ems, off-cut 8 ems.
- Crown 18mo.—14 ems wide, 24 ems long. Gutters 5 ems, backs 7 ems, heads 5 ems, off-cut $6\frac{1}{2}$ ems.
- Crown 32mo.—11 ems wide, 18 ems long. Gutters 3 ems, backs 5 ems, heads $3\frac{1}{2}$ ems, tails 6 ems.
- Foolscap 8vo.—18 ems wide, 32 ems long. Gutters $6\frac{1}{2}$ ems, backs 8 ems, heads $7\frac{1}{2}$ ems.
- Foolscap 12mo.—14 ems wide, 26 ems long. Gutters 5 ems, backs 7 ems, heads 7 ems, off-cut 8 ems.
- Foolscap 18mo.—12 ems wide, 20 ems long. Gutters $4\frac{1}{2}$ ems, backs 5 ems, heads 6 ems, tails $6\frac{1}{2}$ ems.

GENERAL REMARKS.

The impositions given for half-sheet of octavo (page 47), sheet of octavo (page 46), half-sheet of sixteens (page 56), common half-sheet of twelves (page 51), and sheet of twelves (page 49), are the impositions usually adopted in book-houses for works running over many sheets; it is therefore taken for granted, when the compositor lays down his pages that he follows one of these impositions, unless otherwise ordered.

The impositions in the preceding pages embrace schemes sufficient for every purpose. Several which have found a place in other Hand-books are omitted here as unnecessary, and new ones are given instead, in the hope that they will be found more useful in general book-work. A few half-sheets and quarter-sheets, being simply repetitions of the foregoing

impositions, are also omitted. Sheets and half-sheets imposed from the centre, however, will be found, such impositions being in many instances very convenient where short or blank pages occur in a sheet; for, being imposed from the centre, the light or blank pages may be surrounded by the full pages, which in working—at hand-press especially—is a great advantage.

In large London book-houses, where the clicking system is carried on, the compositor is not called upon to lay down and impose his pages, nevertheless a knowledge of impositions ought to be possessed by every workman; for the want of such knowledge—which might at any time be required of him—may prove seriously detrimental to his interests.

In the country especially, both in jobbing and news-offices, to know how to lay down pages and impose them is indispensable. In such offices compositors are, in many instances, unable to accomplish the simplest impositions; and one who is perfect in them, even to an octavo sheet only, is a very useful man.

The introduction of large machines into book-houses, and their employment for book-printing, renders it unnecessary that any of the many-page impositions should be omitted, they, in some houses, being in as great request as even the ordinary sheets of 8vo and 12mo.

I extract the following instructions from my “Compositor’s Guide and Pocket Book”:—

“When a pamphlet of a single sheet or half-sheet is to be imposed, use an imposition that will fold without cutting, as such will be found most convenient for stitching.

“If formes containing many pages of a work are to be imposed, adopt such impositions as contain several signatures; for a work could not be bound neatly if each section contained an unusual number of pages. For instance, a sheet of twenty-fours with two signatures will fold the same as two sheets of twelves, and a sheet of thirty-twos with four signatures will, when cut-up, fold the same as four sheets of octavo.

“As half-sheets are simply the two formes of sheets locked up in one chase they may be laid down by following the foregoing impositions. For example, a half-sheet of forty-eights is a sheet of twenty-fours imposed in one chase, a half-sheet of sixty-fours is a sheet of thirty-twos in one chase, and so with others.

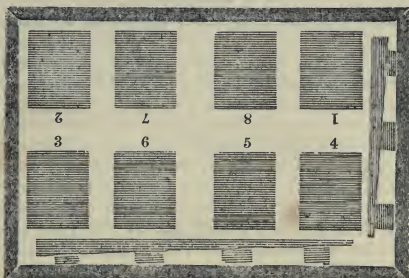
“It may be of some assistance to the compositor to say that in nearly all impositions the first page is laid down on the left hand, and that when all are laid down the numbers of the folios of each pair of pages when added together will make one more

than the number of pages in the sheet or half-sheet. For example, see sheet of thirty-twos—1 and 64 = 65; 33 and 32 = 65; 25 and 40 = 65; 57 and 8 = 65, &c.

“In pamphlets containing a greater number of pages than can be imposed in a couple of chases and worked as a sheet, it will be best to impose the pages so that the half-sheets or quarter sheets can be “inset,” for the convenience of stitching. A pamphlet of 56 pages might be imposed as a sheet of sixteens, a sheet of octavo, and a half-sheet of octavo; that is, 32, 16, and 8 pages. The eight inner pages (25 to 32) to work as half-sheet; the next sixteen inner pages (17, 18, 19, 20, 21, 22, 23, 24, 33, 34, 35, 36, 37, 38, 39, 40) as a sheet of octavo; and the remainder as a sheet of sixteens.”

All impositions—except the half-sheet of eighteens, which is different from the others—are built upon the same foundations: 8vo and 12mo. The sheet of sixty-fours (half-sheet of one hundred and twenty-eights, if imposed in one chase) is eight sheets of 8vo; the half-sheet of ninety-sixes is six sheets of 8vo; the half-sheet of seventy-twos is three sheets of 12mo; the half-sheet of forty-eights is three sheets of 8vo; the sheet of eighteens is a sheet of 12mo, and a half-sheet of 12mo imposed as an off-cut, either for an “inset” or to form a separate half-sheet, &c., &c.

A BOOK-WORK FORME IMPOSED IN A JOB-CHASE, TO WORK ON MACHINE.



As some machines allow very little furniture at the gripper-edge, chases with cross-bars cannot be used in imposing book-formes to be worked on them, it will, therefore, under such circumstances, be necessary to impose the pages well to one side of the chase. as in the above diagram.

J O B - W O R K .

JOB-PRINTING includes an infinite variety of every description of work, in most of which the compositor is called upon to exercise his skill or taste, by displaying and arranging lines so that, according to the class of job, they shall appear bold and effective or artistic and neat. Jobbing composition is quite different from that of book or news-work: the effect of every variety of type and ornament must be studied and borne in mind by the compositor, for no one can hope to set attractive jobs without understanding the effects producible by the materials at his disposal. The jobbing compositor, in addition to "picking up" types, should be able, on examining the copy given to him, with instructions as to what description of job is intended for, to decide how it should be displayed and know how to display it. To be a good jobbing-hand it is not absolutely necessary that the compositor should be a "whip." The qualities required of him most are a quick perception of the features to be brought prominently out in the work in hand, and in so arranging that he loses no time in bringing out those features, by setting useless lines, and, as is sometimes the case with unskilful workmen, in being compelled to almost re-set a job after it is supposed to be finished—or ought to have been finished. A good jobbing-hand, well accustomed to the office in which he is working, can fix at once upon the type that he will require for any line. If he wishes to make a full line of any word he will go with confidence to the type that he expects will make the line and set it, and finds, in nine cases out of ten, the type makes what he requires—a full line; and so on throughout the job in hand, which, when once in type, needs no alteration to bring it down to the size of the paper or to drive it out to the proper length. Every compositor should endeavour to make himself acquainted with the composition of miscellaneous work, as it is a great source of annoyance to find that a man who is put on to assist cannot earn his wages, but is in fact a hindrance to others in a jobbing office. Even for the most

competent hands to proceed with their work in a satisfactory manner, however, it is necessary that they should be thoroughly acquainted with the various descriptions of type the office contains, and know where to find it without having to waste time in seeking.

GENERAL ARRANGEMENT.

To facilitate the execution of work, and to prevent unnecessary embarrassment to the workmen, every rack ought to be numbered or lettered, and all the cases numbered, and figures should be placed on the sides of the racks, corresponding with those on the cases in the racks. If the racks are lettered—say A, B, C, &c.,—the cases belonging to rack A ought to be numbered and lettered A, thus, 1A, 2A, 3A, &c.; and all cases must be put in the racks according to their numbers. Every case should also be labeled with lines of the types it contains, and it would be a convenient plan to paste a slip of each description of type on a sheet of paper, and give the number of the case containing it, thus—

1 A REFORMATION.

POSTPONEMENT OF LECTURE.

BY THE AUTHOR OF

2 A In Affectionate Remembrance of ASTRONOMY.

THE ROYAL BLUE BOOK OFFICE.

This sheet should be pasted on the wall at the end of the rack, or on the rack itself, so that the compositor would see at a glance where the type he requires is to be found. A book might also be kept containing a line of each sort of type, numbered and lettered as on the cases, which would be handy for reference for any compositor not acquainted with the contents of the office, or to show to any customer who might wish to choose a particular type for a job. The larger types should be arranged on shelves, with slips of wood between each line of type; and the largest wood type might be set on edge, and each letter labeled, or a label placed below each set of letters, thus—

Type on edge	AAABBB		CCDD		EEEE		FFGG		HHIII	
Face of shelf	A	B	C	D	E	F	G	H	I	

By which arrangement much space is saved; and if the labels are printed on cards, and tacked on the face of the shelves, they

will remain firm. An upright ought to be placed between the types, at intervals, to keep them from falling over—say, between B and C, D and E, E and F, G and H, I and J, &c. When kept in this manner, the types can be set from the shelves with nearly as much ease as a line of caps. The cases most in use should be kept up, so as to be always at hand ; and any case taken out of the rack for temporary use must be returned as soon as done with ; in fact, everything in an office ought to have a “proper place, and everything should be kept in its proper place.”

Shelves should be made to fit the empty ends of “whole” frames. Small jobs that require to be kept standing ought to be tightly corded and put on galleys, which would be out of the way on those shelves, and could easily be got at. But as soon as a job is done with, let it be distributed as speedily as possible ; and no forme that has been unlocked on bulks, boards, imposing-stone, or anywhere else, must be allowed to stand long before being cleared away—to prevent “pie.” Leads, reglets, rules, &c., &c., that are turned out in distribution ought to be cleared away at once.

Forme-racks are very useful in every office ; jobs requiring to stand in chase should have a label attached to the outer edge of the chase, on which is written a description of the job, and be placed in the forme-rack.

REGLETS, FURNITURE, ETC.

Cut reglets to the lengths required for different-sized bills, commencing at crown quarto, and wood furniture and side-sticks to pica ems, commencing from about eighteen ems, where no metal furniture is used, and increasing in length by two ems up to say fifty ems, and over that by four ems. Keep “sets” of furniture, with side and foot-sticks for different sizes of bills, especially for those most required ; and when not in use tie up and keep them in pigeon holes, or in any other place where they will be always at hand. Metal furniture and quotations ought to be found in every jobbing office.

DISPLAY.

I WILL not attempt to lay down imperative rules to guide the compositor to display every class of work ; although I may say all depends upon the proper arrangement of lines in various lengths, and the proper selection of different faces and sizes of

type, which, by harmoniously blending, will produce the best effect; and in the case of posters, &c., they must be so arranged that the purport of the announcement can at once be seen. Heavy lines ought not to follow each other without being relieved by lighter ones, and full lines must have two or three shorter lines of various lengths between them to permit of their showing to advantage. It must be borne in mind, however, that the display which would be considered good for a poster would not be suitable for a card or circular (see page 83), or for any other description of fancy-work. The display of a job must be in keeping with its character; for a poster it must be done with the object of catching the eye—bold and effective; for cards, circulars, billheads, memorandums, note headings, &c., it ought to be neat and artistic. Proper “whiting” (leading or spacing-out) of jobs, is most important. By properly whiting, a job but indifferently displayed will be rendered passable; but a job, however well displayed, if improperly whited, may be utterly spoiled in appearance. The better to illustrate my meaning, I give the circular on the next page, “whited” properly and improperly.

Beside the illustration given of a displayed circular, a very neat and satisfactory job can be produced by simply running on in script, italic, or even roman, without display, in the following manner—

New Drapery Establishment.

—o::o—

MISS J. VERNON

BEGS respectfully to inform the Ladies of Middlesbro' and neighbourhood that she will open, on the 1st July, the premises, 80, Linthorpe Road, with a choice selection of Millinery Goods, all the Latest Styles in Bonnets, Hats, Feathers, and Flowers from the best houses.

An early call is respectfully solicited, Miss V. feeling assured that an inspection will well repay intending purchasers.

—o::o—

NO. 80, LINTHORPE ROAD,
MIDDLESBROUGH.

NOTICE OF REMOVAL.

TO

CORPORATION ROAD.

—:0:—

J. K. PXCXKXRXNG,

BOOT & SHOE MAKER,

(Late of Short Street),

In announcing his Removal to more convenient and central premises, feels it his duty to thank his friends for the very liberal support he has received since he commenced business; and, in soliciting a continuance of the same, assures his patrons that all orders entrusted to him shall have his personal punctual attention.

—0—

REPAIRS BY PRACTICAL WORKMEN.

NOTICE OF REMOVAL

TO

CORPORATION ROAD.

—:0:—

J. K. PXCXKXRXNG,

BOOT & SHOE MAKER,

(Late of Short Street),

In announcing his Removal to more convenient and central premises, feels it his duty to thank his friends for the very liberal support he has received since he commenced business; and, in soliciting a continuance of the same, assures his patrons that all orders entrusted to him shall have his personal punctual attention.

—0—

REPAIRS BY PRACTICAL WORKMEN.

PROPERLY WHITED.

IMPROPERLY WHITED.

NEW SUMMER GOODS!

J. NEWMAN,
CLOTHIER & OUTFITTER,
25, LONDON ROAD,
 Begs to announce that he has just received
 A LARGE CONSIGNMENT OF
GENTS' & YOUTHS'

CLOTHING

OF EVERY DESCRIPTION.

Full Suits Black Cloth, Gent's - £3 15 0
 Do. Finest Grey Tweed do. - 2 12 6
 Boys' & Youths' Suits from 15/- to 2 5 0

**A Varied Assortment, all New
 Styles, to Choose from.**

OBSERVE THE ADDRESS:

25, LONDON ROAD
SYDENHAM.

POSTER.

The same job composed as a Circular and as a Poster.

NEW SUMMER GOODS

J. NEWMAN,
CLOTHIER AND OUTFITTER,

25, LONDON ROAD, SYDENHAM,

Begs to announce that he has just received
 a large consignment of

Gents' and Youths' Clothing

Of every description.

—:—

Full Suits Black Cloth, Gent's - - £3 15 0
 Do. Finest Grey Tweed do. - - 2 12 6
 Boys' and Youths' Suits from 15s. to - 2 5 0

—:—

A VARIED ASSORTMENT, ALL NEW STYLES, TO CHOOSE FROM.

—:—

OBSERVE THE ADDRESS:

25, LONDON ROAD,
SYDENHAM.

The following illustration of a poster overcrowded with heavy and full lines, and the same relieved with light and shorter lines, will further explain the meaning of what I have said—

CLEARING OUT
AT
A GREAT SACRIFICE

T. SIMPKINSON'S
STUPENDOUS STOCK
OF
DRAPERY,
FEATHERS, FLOWERS,
AND
FANCY GOODS

Will be CLEARED OUT at a
Reduction of 50 per Cent.

6, WELLINGTON STREET.

J. GOULD, PRINTER, MIDDLESBRO'.

BADLY DISPLAYED.

CLEARING OUT
AT A
GREAT SACRIFICE!

T. SIMPKINSON'S
STUPENDOUS STOCK
OF
DRAPERY,
FEATHERS, FLOWERS,
AND
FANCY GOODS

WILL BE
CLEARED OUT
AT A

Reduction of 50 per Cent.

6, WELLINGTON STREET.

J. GOULD, PRINTER, MIDDLESBRO'.

RELIEVED WITH LIGHT AND SHORTER LINES.

To set posters of this description, or any that may require nearly every line to be displayed, first glance over the copy and decide which shall be the most prominent lines. Set the lines fixed upon, and lay them on the imposing-stone about the distance apart you would like them to occupy when the bill is finished; and then fill in the secondary and catch lines. The secondary lines should be set lighter or in such types as are best adapted to heighten the display of the principal ones; and only large enough to drive the bill out to the proper length. In the poster on the opposite page, for instance, the lines "Clearing out," "J. Simpkinson's," "Drapery," "Fancy Goods," and "Reduction of 50 per cent." would be set first, and laid on the stone, and then the other lines filled in.

Circulars, either in the style of notes or letters, and signed by the issuer, ought to be run on, without any attempt at display —

EXCELSIOR FOUNDRY,
MIDDLESBROUGH,
SEPT. 20, 1880.

Gentlemen,

*We have pleasure in informing you
that our Foundry is now complete, and we
are in a position to undertake every descrip-
tion of Metal and Brass Castings, &c.; and
we beg most respectfully to solicit your
patronage.*

*We shall be glad to furnish Estimates
for whatever you may require.*

We are, Gentlemen,

Your obedient Servants,

MELLANBY & Co.

Cards, invoice headings, memorandums, &c., afford infinite scope for display, and, according to the fancy of the compositor, or according to "orders," are set in plain, bold, small, or fancy types, or in script.

Instead of giving pages of matter descriptive of the methods of composing billheads, memorandums, note-headings, &c., which would only embarrass the young compositor, I select the following to illustrate various methods of displaying such jobs:—

THORNABY ROAD,

Stockton,188

Bought of WM. CRAGGS,GROECR, TEA DEALER & PROVISION MERCHANT.

DUNDAS STREET,

Middlesbrough,1884.

To MELLANBY & SONS,IRON MERCHANTS.

DURHAM,188 .

To FRANK STRAP, Dr.,BUTCHER.

CAMDEN STREET, YORK STREET,

London,188 .

M**Dr. To W. K. PEARSON,**BUILDER, PLASTERER, HOUSE DECORATOR, PAPER HANGER, &c.

CHURCH STREET,

Middlesbrough,78.....

To Ralph Hobbs,
Surgeon.

Attendance and Medicine, £ " "

Particulars if required.

MEMORANDUM.

FROM

JOSEPH HENRY,

Tea Merchant,

STOCKTON.

Residence: Gilkes Street.

To.....

.....

.....

.....188...

Furniture Dealer, Upholsterer, and Undertaker.

MEMORANDUM.

FROM

J. CORNER,

158, PINE STREET,

MIDDLESBROUGH.

To.....

.....

.....188...

CHEAP PAPER-HANGINGS.



*24, South Street,
Middlesbrough,*

.....18



*Stanhope Street,
Liverpool,*

.....18

Middlesbrough Academy,
Middlesbrough,

.....1884.

*Tooley, Robertson, and Co.,
54, Great Ormande Street,
Newcastle-upon-Tyne.*

Curved lines introduced by way of variety sometimes enhance the beauty of display. Brass curves and curvilinear furniture have been introduced to the trade to facilitate the forming of curves, and of course are useful. Where, however, such appliances have not found their way into an office, and the compositor desires to introduce a curved line, I consider the best method is, in the first place, to set up the whole of the job with the

T H O M A S M O O R E ,
PRACTICAL
BRASSFINISHER & TINSMITH,
OAK STREET,
MIDDLESBROUGH.

exception of the curved line; slide it on the imposing stone, and place the furniture round it. Slackly quoining the side-stick, open the page where the line is to be introduced, and, having previously prepared the curved line, insert it, using quadrats, quotations, or whatever is most convenient, in the manner indicated, to secure it in its place. Tighten the quoins gradually, and lock up.



To form the curve it is best to cut brass rule to about the height of a lead, and it may be bent to the desired curve by beating it on a piece of round wood. The rules and quadrats in the above illustration, are left type-high to better illustrate the mode of procedure.

BUSINESS CARD.

THOMAS PARKINSON,
 DECORATOR,
Painter, Grainer, Sign Writer,
 GLASS GILDER, &c.,
 35, GEORGE STREET,
 MIDDLESBROUGH.

John Henry Gilbert,

17, WEST STREET, NORMANBY.

VISITING CARD.

The following examples of different styles of titles are copied from various works, the types used being as nearly as possible reduced in proportion to the size of the pages. They are selected more on account of the little display they require than for anything else; for it often occurs that the compositor who is not familiar with the composition of titles is more puzzled how to make a respectable title out of a few lines than he is where the matter for display is more profuse. The illustrations given will also guide the compositor in the display and whiting of titles, which is of a different character to that of general jobbing-work.

PENNY READINGS

AND

RECITATIONS,

IN PROSE AND VERSE,

BEING INTERESTING AND INSTRUCTIVE
SUBJECTS, HUMOROUS, HISTORICAL,
SCIENTIFIC, AND WITTY,

ADAPTED FOR EVENING PARTIES AND
SOCIAL GATHERINGS.

BY PROFESSOR DUNCAN.

SECOND SERIES.

WAKEFIELD:

WILLIAM NICHOLSON AND SONS.

No. 20.]

THE

[March 15.

STOCKTON CRITIC:

A

LOCAL MISCELLANY,

CONTAINING

A CRITICAL AND HISTORICAL ACCOUNT
OF THE CHURCHES AND CHAPELS,
AND PREACHERS AND PEOPLE,
OF THIS TOWN, ETC., ETC.

BY CRITICUS.

Published on the 1st and 15th of each month.
PRICE ONE PENNY.

MIDDLESBROUGH:

J. GOULD, PRINTER, 24, SOUTH STREET.

1878.

IMPROVED

PRONOUNCING DICTIONARY

OF THE

ENGLISH LANGUAGE.

BY NOAH WEBSTER, LL.D.

CONDENSED AND ADAPTED TO ENGLISH ORTHOGRAPHY
AND USAGE, WITH ADDITIONS,

BY CHARLES ROBSON.

TO WHICH ARE ADDED

ACCENTUATED LISTS OF SCRIPTURE, CLASSICAL,
AND MODERN GEOGRAPHICAL
PROPER NAMES.

LONDON :

WARD, LOCK, AND TYLER, WARWICK HOUSE.

92

THE LETTER-PRESS PRINTER.

ANDREW TRUDGER'S OBSERVATIONS:

A COLLECTION OF

TEMPERANCE SKETCHES AND
STORIES.

BY

J. S. CALVERT.

MIDDLESBROUGH :

J. GOULD, PRINTER, 24, SOUTH STREET.

1880.

ARCHITECTURE,

KAVANA H :

AND

A TALE.

HOW IT AROSE ;

BY

HENRY WADSWORTH LONGFELLOW

Author of "Evangeline," &c.

With a Model for the Gothic.

BY CHARLOTTE A. POUND.

ILLUSTRATED

WITH ORIGINAL DESIGNS BY BIRKET FOSTER.



LONDON :

E. MARLBOROUGH & Co., 51, OLD BAILEY.

R. MEDLEY, VENTNOR, I.W.

1880.

LONDON :

W. KENT & Co. (LATE D. BOGUE),

86, FLEET STREET,

MDCCLVIII.

SOUVENIR
OF
Modern Minstrelsy.

A COLLECTION OF ORIGINAL AND
SELECT POETRY BY LIVING
WRITERS.

SECOND SERIES.

LONDON:
SAMPSON LOW, SON, & CO., 47, LUDGATE HILL.

THE

WORKING-MAN'S WAY
IN THE WORLD:

BEING THE

Autobiography of a Journeyman Printer.

SECOND THOUSAND.

London:

W. AND F. G. CASH, BISHOPSGATE WITHOUT.
EDINBURGH: JOHN MENZIES.

In the hope of assisting the compositor in the composition of posters and hand-bills, I will give a few illustrations, with remarks on what I consider the most expeditious modes of setting the same. The following is the usual style of sale bill in the North of England—

MIDDLESBRO'-ON-TEES.

IMPORTANT SALE OF VALUABLE MAHOGANY
HOUSEHOLD FURNITURE AND EFFECTS.

MR. J. HEWARTSON

Begs to announce that he has received instructions to

SELL BY AUCTION,

AT HIS CENTRAL SALE ROOMS,

On TUESDAY, JULY 10, 1880,

The Valuable Household

FURNITURE

AND HOUSEHOLD APPOINTMENTS.

The Sitting-Room

Comprises Mahogany Sofa, in hair-seating; Mahogany Easy Chair, spring stuffed, in hair-seating; set of six Balloon-backed Chairs; massive Mahogany Centre Table, on pedestal; Wheeler and Wilson's Sewing Machine, in perfect working order; four Pictures, in gilt Frames; sweet-toned PIANO-FORTE, in Rosewood Case.

The Breakfast Room

Comprises Couch, Easy Chair and six single Chairs, Mahogany Centre Table, Stand Table, Carpet and Hearth Rug, Gas Pendant, Fender and Fireirons, three Pictures in Maple Frames, Venetian Blinds, &c.

The Bed-Rooms

Include full-sized Iron Bedsteads, Tudor Bedstead, three prime Feather Beds, Bolsters, and Pillows, Drawers, Dressing Tables, and Bed-room Appendages, &c.

Sale to Commence at half-past One o'clock.

Central Sale Rooms, Middlesbrough.

Printed at the Office of J. Gould, South-st., Middlesbro'.

Suppose the foregoing to be a double-demy poster. First of all, lay your chase on the imposing stone and "dress" it with furniture, leaving the sidesticks on one side. Set the whole of the body of the bill from the word "Furniture" to the imprint; you will then find exactly how much space is left for the heading. Set the word "Furniture" in as bold a type as you consider the space at your disposal will warrant—it being the principal line. Then commence at "J. Hewartson," and set the lines down to "Furniture," remembering at the same time you must leave room for the heading. Having done so, set the top line and empty it; you will now know the amount of space left for the lines "Important Sale," &c., and they can be displayed more or less to fill that space, so as to make the bill, when finished, the proper length. By using ordinary judgment, and following these instructions, there need be no alteration in the

PRINCE^{OF} WALES
MUSIC HALL.

Monday and During
the Week.

First Appearance of
J. ROBERTS
"I am Going!"

Last Six Nights of
FRED

JEFFERSON!

The Great
Ticket-of-Leave Man

First Appearance of
HARRY RIPLEY,
BARITONE.

MR. & MRS. HARRISON
Duettists.

JIM SMALING
Clog Dancer.

J. CLOSE,
Stump Orator.

Time and Prices as
usual.

J. Gould, Printer.

RINCE^{OF} WALE

Monday and During
the Week.

First Appearance of

"I am Going!"

Last Six Nights of
FRED

The Great
Ticket-of-Leave Man

First Appearance of

BARITONE.

Duettists.

Clog Dancer.

Stump Orator.

Time and Prices as
usual.

J. Gould, Printer.

P S
MUSIC HALL.

J. ROBERTS

JEFFERSON!

HARRY RIPLEY,

MR. & MRS. HARRISON

JIM SMALING

J. CLOSE,

Bill set and Divided for Working in Two Colours.

size of any line in the bill either to "drive out" or "get in;" so that as soon as the last line is emptied you may place your side and foot-sticks to the forme, lock up, and pull a proof.

Set two-colour bills as ordinary bills; lock up, and pull a proof on dry paper; decide which lines shall be in a different colour; then unlock the forme and take them out, putting in the exact amount of white required to fill the openings, and lock up. If it is intended to print both formes together, and transpose them for the second colour, the two formes must be imposed, side by side, in one chase; if it is intended to work each forme separately, proceed to make up the second forme in a chase by itself. First fold the proof down the centre to measure with. Then dress chase and drop in the lines taken from the first forme; lay the folded proof on the furniture with the folded edge against the beginning of the lines, and make each line fall in the EXACT position in the chase that it occupies in the proof, by placing the proper white between them. Lock up, and both formes are ready to be worked off. By imposing them in a chase side by side and head to foot they may be worked together without transposition, by merely turning the sheet for the second colour. At press, points would be used; at machine, the sheets would be fed to a gauge on the opposite side of the machine from the feeder for the first colour, and to a gauge towards the feeder for the second colour.

ROYAL ALHAMBRA PALACE.

TWELVE NIGHTS ONLY.

THE GREAT AND
FAMOUS

MONS. LEOTARD BOSCO!

THE
KING OF
CONJURORS!

The Mystery of all Mysteries!!

Posters and handbills may be displayed in many ways with advantage without adhering to the usual method of using only straight lines of various sizes and different varieties of face. By simply introducing a line (especially where bills contain

only a few words,) in an oblique direction, or in any manner which will introduce variety, an effect both pleasing and striking may be obtained.



Although small bills of the above description are not considered easy to compose, they certainly are not particularly difficult, if properly managed. Cut four pica reglets to the length required to leave a sufficient margin on the paper, mitring the ends; place the ends together and tightly cord the square, passing the twine half-a-dozen times round, but not allowing the cord to overlap. The rules of the above will illustrate the manner of cutting the reglet to form the frame of the square. Set the principal line of sufficient length to fill the centre, place a lead on each side, then drop in the following and preceding lines, of course reducing the length of the leads to suit the lines within the square. When all have

been set, proceed to space out each line; and when that is done, slide the bill off the galley, impose and lock up *without removing the page-cord*, which will prevent disarrangement of the lines. If carefully tied, the cord will cause no inconvenience.

If the example were a poster, the only difference in setting it would be, instead of making a square with four pieces of reglet, a square should be made inside a chase, side-sticks forming two sides, with quoins inserted to keep them from moving.

BUY
YOUR
TEAS
AND
PROVISIONS
AT
JUDSON'S
NEW STORE,
DOCK-ST.

HAMS & BACON
CHEAP AND
GOOD.

PICNICKS
AND
PRESERVES.

PRIME CHEESE
FROM THE
BEST DAIRIES.

TEA & COFFEE
AT ALL
PRICES.

Bills in the shape of the above are set in the same manner as the one already described, with the exception of the central square, which can be formed by inserting rules or reglets, as in the illustration.

Many-sheet posters are formidable only when there is no room to set them as one bill, or when the type at the disposal of the compositor is not suitable for the job. A line or two cut for the occasion will surmount the latter difficulty; and a little calculation the former. Of course where a six-, eight-, or nine-sheet poster can be set up and laid on the office-floor, it can easily be subdivided and then worked off. But where there is no room to allow of its being arranged in such a manner, it will be necessary to make the division in the copy. We will suppose that the copy for a nine-sheet poster reads: "*Prince of Wales Music Hall, Monday next, Feb. 6, and every evening during the week. The Wondrous Leotard on the Flying Trapeze. Supported by a Brilliant Company of Star Artistes. Time of Opening and Prices as usual.*"

Before proceeding to set this as a nine-sheet poster—if it cannot be set and laid out on the office-floor—it will be necessary to divide the copy into nine sections; each section having its proper portion of the display allotted to it, according to the fancy of the compositor, and a rough sketch of the bill made somewhat after this manner:—

PRINCE OF MOND And Ev THE	WALES M AY NEXT, ery Evening during th WONDR	USIC HALL, FEB. 6, e Week. OUS
------------------------------------	---	---

LE FLYI	OTA ON THE NG TRA	RD: PEZE!
------------	-------------------------	--------------

Support STAR Time of	ted by a Brilliant Com ARTI Opening and Prices as IMPRINT.	pany of STES! usual.
----------------------------	---	----------------------------

Count the letters in the principal display lines, the space between each word being taken as equal to one letter, and divide, allowing each section to represent a sheet. and write the copy afresh as above.

PRINCE OF

MOND
And
THEE

1

LE

FLYI

4

STAR

Sup

Time

J. GOULD, PRINT

7

WALES M

AY NEXT,
Every Evening during the
WONDER

2

OTA
ON THE
NG TRA

5

ported by a Brilliant Comp
ARTI

of opening and prices as

ER, 24, SOUTH STREET,

8

USIG HALL,

FEB. 6,
Week,
OUS

3

RD!
PEZE!

6

any of
STES!

usual.

MIDDLESBROUGH.

9

Having finished the sketch, commence by setting the principal lines, "Prince of Wales," "Leotard," &c., in such type as will extend across the three sheets. Set the secondary lines, taking sufficient to make a full line in the middle sheet; and should any drive over, leave an equal number of types from the beginning and the end to fall in the sheets on either side. It will be found in practice that but few of the small lines will drive over to the outside sheets. When the middle sheet has been filled, lock it up and work off. After working, wash the forme and lay it up. The sheet on either side can now be commenced; and in setting it, use the reglets that were used in whiting out the middle sheet. If you prefer sheet 1 to be set after sheet 2, the portions of lines belonging to that sheet must be spaced to the end of the lines; where catch or small lines have occurred in the middle sheet, quadrats or furniture of the same body must be used in the outer sheet, so that, when printed and placed side by side, each line will range exactly, and the sheets when united appear as one poster. Proceed in the same manner with the remaining sheets. The margin of the sheets when worked should be as represented in the example given. In the three outside sheets (1, 4, 7) a little margin must be left at the end of the lines, to allow of the middle sheets being pasted to them. The middle and outside sheets should be printed close to the front edge of the sheets, all the margin being left at the end of the lines. At the bottom of the first (1, 2, 3) and second (4, 5, 6) set of sheets, also, a little margin must be left, and the second and third set of sheets must be printed close to the top. Where, however, there is convenience sufficient to allow of the principal lines of such posters being laid on the office floor when set, the difficulty of setting many-sheet bills is considerably diminished.

When display lines require spacing between each letter to make them the desired length, the space should be so regulated that the letters may, as far as possible, appear to be at equal distances. For instance, less space is required between AW, and all letters standing apart from each other in like manner, than between such as HI and those which stand close.

In lines of capitals, clarendons, &c., which are not condensed, space corresponding to the face of the types ought to be placed between the words—two thick spaces or an em quad. Expanded and large-sized heavy-faced type will advantageously stand more space; but less should be used where the lines are composed of condensed type. Lines having spaces between each letter require proportionately extra space between the words.

In circulars, cards, and other fancy work, where an imprint

may be allowed, the imprint should be set in the smallest type, and placed at either of the bottom corners of the job.

In almost every description of composition it will occasionally be found that a list or some other matter must be set in columns. When this is the case, even if it consist of three, four, or more columns, it will be found most expeditious to set each column with a separate justification, in the same stick that is used for the job. For example, we will suppose the following to be part of a job set to eighteen ems:—

COMMITTEE.

MR. E. WRAG	MR. J. HAGUE	MR. R. RICHARDSON
MR. H. JOHNSON	MR. T. SMYTHE	MR. J. WATSON
MR. T. MOORE	MR. A. SHEAD	MR. C. PHILP
MR. H. CHURCH	MR. R. MATHEWS	MR. J. ROBERTSON

Being three columns, each is six ems wide. If it is intended to set the whole in one measure, the first column must be justified against a twelve-em lead or clump, thus:—

MR. E. WRAG

Then take out the twelve-em, and space out the second column against a six-em:—

MR. E. WRAG MR. J. HAGUE

Now remove the six-em, and let the last column fill the space left, and the first line will appear thus:—

MR. E. WRAG MR. J. HAGUE MR. R. RICHARDSON

Proceed with each succeeding line in the same manner; and if sufficient care is bestowed on the justification of each column they may be set to any length with as much regularity as if a separate stick were used, with column rules dividing.

If it be necessary to insert rules, a thick lead placed in the stick at the beginning or end of the lines (if eight-to-pica rule be used) would, when removed, allow for the rules; and in that case the second and third columns should be indented an en or em.

TABULAR AND TABLE-WORK.

TABULAR and table-work embrace every description of job set in columns, whether such columns contain matter or not. It is considered the most difficult description of composition; and, with the exception of mathematics, really is the most difficult.

Table-work requires accurate justification, and, in complicated tables which must be confined to certain sizes, very careful measurement and calculation. Where a table, however, is set as a job, to make what size it may within certain limits, the task of putting it together will not be difficult, though it may be tedious.

Much in table-work must be left to the judgment of the compositor, who must decide, according to the description of the table, how and with what it may be "built up" with the least consumption of time, taking into consideration the material at his disposal. In some houses the composition of a difficult table-page would appear almost an impossibility, the material not being at all suitable for such work—so the ordinary workman would imagine. The "man of resources," however, will set to work, and, to the astonishment of himself and his fellow-workmen, will produce that which it was imagined could not be "got up" at all. I will not here advocate the "building" and "fudging" which must be resorted to under such conditions, neither will I mention the foreign and strange substances that the compositor must sometimes introduce to accomplish such a feat; but supposing that offices are tolerably supplied with the requisite material, I will endeavour to lay down a few rules for setting certain classes of table-work which may act as useful hints to the workman.

If a table be expected to come into a certain space, and it must fill that space, the compositor must note the number of columns the table contains, and the width the whole combined must make. For example, take a table to consist of twenty-four columns, which is to be inserted in an 8vo work as one page, the page being 22 ems wide and 36 long. The first thing to be found out is the width that can be allowed for each column, which can be done in this manner:—The 24 columns require 23 perpendicular rules, for which, if eight-to-pica be used, an allowance of 3 ems must be made, leaving 19 ems to be divided into the 24 columns. The best method of finding the space between the columns is to set lines of long primer and other quadrats to 19 ems, and that which comes nearest to the measure, allowing an em for each column, must be chosen as the width to be allowed between. The table may now be commenced. If the columns are blanks they may be composed of quadrats; if they consist of figures, the exact size of type the quadrats will allow can be used.

When the body of a table is composed entirely of figures it should be set as common matter (unless the page be too wide to set in one measure with comfort, in which case it would be

best to set the columns in two or more measures), running on column after column across the page, thus:—

21	1	16	32	10	63	4	115	10	033	0	1
22	1	16	92	11	03	5	95	11	033	5	10
23	1	17	22	11	63	6	55	12	133	11	2
24	1	17	72	12	13	6	115	13	133	16	5
25	1	18	02	12	63	7	35	14	034	2	0
<hr/>											
26	1	18	62	13	03	7	105	14	1134	8	2
27	1	19	22	13	63	8	75	15	1134	16	1
28	1	19	112	14	13	9	55	17	135	4	9
29	2	0	82	14	83	10	35	18	635	14	1
30	2	1	62	15	43	11	26	0	136	4	0

If space allows, a lead introduced between the figures and the rules will much improve the appearance of the work. When the body of the table has been set and rules and leads inserted, the exact width of the columns can be ascertained, and the heading set and justified to range accurately, thus.—

21	1	16	3	2	10	6	3	4	11	5	10	0	33	0	1
22	1	16	9	2	11	0	3	5	9	5	11	0	33	5	10
23	1	17	2	2	11	6	3	6	5	5	12	1	33	11	2
24	1	17	7	2	12	1	3	6	11	5	13	1	33	16	5
25	1	18	0	2	12	6	3	7	3	5	14	0	34	2	0
<hr/>															
26	1	18	6	2	13	0	3	7	10	5	14	11	34	8	2
27	1	19	2	2	13	6	3	8	7	5	15	11	34	16	1
28	1	19	11	2	14	1	3	9	5	5	17	1	35	4	9
29	2	0	8	2	14	8	3	10	3	5	18	6	35	14	1
30	2	1	6	2	15	4	3	11	2	6	0	1	36	4	0

Age next Birth- day	Annual Premium Payable during life.	Annual Premium limited to			Single Payments.
		21 Payments.	14 Payments.	Seven Payments.	

Having inserted leads and rules, and set the heading, the latter may be lifted from the foot of the table to its place at the top of the columns, and the table is complete.

Some descriptions of tabular work, containing only matter, may also with advantage, both as regards expedition and

accuracy, be composed in the same manner. For instance, the columns of a job of the following description would be more readily set in one stick, each column being justified in the manner described at page 103, than if composed in separate columns and made up afterwards.

Session and Chapter.	Title.	Extent of Repeal.
2 & 3 Vict. c. 47.	An Act for further improving the police in and near the metropolis.	Section forty-one, from "and in the case of any offence" to end of section. Section forty-two; section forty-three.
3 & 4 Vict. c. 61.	An Act to amend the Acts relating to the general sale of beer and cider by retail in England.	Section ten; section thirteen; section fifteen; section sixteen; section seventeen; section nineteen; also so much of section twenty-one as incorporates or applies any repealed enactment.

By setting the above in one measure in the manner already described, the whites are introduced in the ordinary course of composition, in the proper columns, and each column made to range without trouble. When composed, a proof may be pulled before the insertion of the rules; and should any sentence, line, or word be omitted, corrections may be made as easily as with common matter; and should such work extend over a number of pages, the matter may be made up with as much facility as bookwork, the rules being subsequently inserted. Where columns are wide, however, the most ready method is to set them in the same manner as the columns of a newspaper, and make up after all is composed.

When columns are so narrow as to necessitate setting the headings lengthwise, they ought to be set from bottom to top, and range at the beginning of the lines.

The type used for setting headings for table work is generally about two sizes smaller than the body of the table.

In setting money columns, place an em quadrat between all single figures, and an en only before and between the double figures, thus: £10 10 10. Before commencing to compose a

1 1 1

priced list, glance down the columns to see whether there are any fractions ($\frac{1}{2}d.$ $\frac{1}{4}d.$) If any occur, the end of each line in which there are none must be indented an en to allow for them, so that the £ s. d. columns shall range. Where none are found in the list, no indention will be required.

In setting poetry, any line which may turn over ought to be indented three or four ems, and the line of which it forms part spaced out to the end. When poetry is introduced in matter it should be placed as nearly as possible in the middle of the measure; it is best to set the longest line, where the lines do not vary to a great extent, and having spaced it in the centre set the other lines to the indention required by it, or allow a trifle greater indention. That is, supposing the longest line requires five ems to fill the measure, indent the whole three ems. Where the lines vary much in length, set the longest line and the shortest, and take an indention between the two for the whole. For instance, if the longest line requires an indention of four ems and the shortest eight ems, the proper indention for the whole will be six ems.

MEASURES.

I APPEND measures for a few of the jobs most frequently required in jobbing offices, as a guide to compositors who may not be used to jobbing, and would consequently be at a loss "how to make up their stick," if ordered to set any specified size of job.

CIRCULARS.

	8vo.		4to.		folio.	
	ems.	ems.	ems.	ems.	ems.	ems.
Foolscap - -	16	or 17	28	to 30	36	to 38
Small Post - -	18	or 19	32	to 34	38	to 41
Large Post - -	22	to 24	36	to 38	50	to 52

BILLS.

Crown - - -	22	to 24	36	to 38	50	to 52
Demy - - -	24	to 26	42	to 44	56	to 58
Royal - - -	26	to 28	50	to 52	62	to 64

Small Cards 18 or 19 ems. Large Cards 22 to 24 ems.

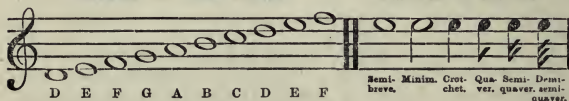
I have omitted measures for broadsides. Some offices adopt very wide measures; but I consider a margin of from five to eight ems on each side, according to the size of posters, very much improves their appearance. What is meant by broadsides is simply a poster set to the full size of the paper, whether demy or double-demy, and not, as many imagine, a poster set the broad way.

MUSIC COMPOSITION.

It is necessary that a person who wishes to engage in this branch of work should have some knowledge of the rudiments of Music. He should learn the names of the notes, the relative values of the different kinds of notes and rests, the difference between the clefs, what forms the stave, flats, sharps, naturals, repeats, the signs denoting the time the music has to be played in, the crescendo and decrescendo, and other items he will be continually meeting with in music, most of which he may become acquainted with by expending sixpence on an instruction book for the Concertina, Flute, Piano, or almost any other musical instrument.

NAMES OF THE NOTES.

KINDS OF NOTES.



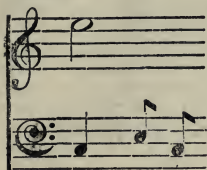
RESTS, ETC.



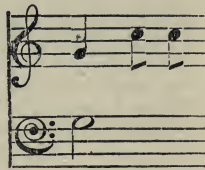
In setting up music from manuscript it is almost impossible that a person will do it correctly if he has not the knowledge above spoken of. After the manuscript has been received the compositor should look over it, counting the number of bars it contains, and then allot to each bar the required number of ems the space it has to fill will allow, so that there may be as much uniformity in its appearance as is convenient.

When the two staves are employed, as in instrumental music, the bars directly under each other must be of exactly one width, and the notes arranged so that they will accommodate

each other: thus, if the upper bar has only one note in it and the lower one three, then the top note, being as long as the other three must be arranged over the first note of the bottom bar, so that it will have the same amount of space as the others:—



or *vice versa*,



When lines of poetry are interspersed they should be examined so that if any of the sections are too long for the music between which they have to be placed, that special bar may be lengthened and some of the others shortened, so that the words may be got in properly.

All the stems of notes should be the same length ($2\frac{1}{2}$ cms), excepting those of grace-notes, which should only be half as long. The stems may be placed either upwards or downwards, according to convenience.

In instrumental music tailed notes are generally placed in groups so as to be more readily read.

Good composers generally contrive to make the lines overlap each other brickwise, so that joints do not fall directly under each other. The compositor should always be particular to obtain the exact size of the space his music has to fill.

The type-founders differ so much in their music types that no special directions can be given which will suit more than one kind of type, but I feel assured that should these brief instructions be followed by any studious compositor, he will very soon be able to set music as quick as the average of composers who make that branch their *forte*, as its composition is not nearly so difficult as some would have outsiders believe.

CASTING-OFF COPY.

To ascertain the number of pages a certain quantity of manuscript may make in any particular size of type is a task which requires very careful calculation. Should the copy be "cut up" with erasures, alterations, and additions, the task will

be found difficult; and the calculations, unless very carefully performed, may be found unreliable.

Where the copy is pretty regular, and is all written upon paper of the same size, one of the best methods of proceeding is to take a folio which, judging by appearances, contains an average quantity of manuscript, and commence "even," setting on until the lines in the stick "make even" with some line in the manuscript, or nearly so. Count the lines composed, and the number of lines they take of the manuscript. We will suppose that 15 lines composed have taken up 23 of the copy, that each page of manuscript contains on an average 30 lines, and that the whole consists of 306 pages. Then proceed:—

306 pages manuscript.

30 lines in page.

9180 lines in the whole of the manuscript.

15 lines of type.

45900

9180

23) 137700 (5987 lines of type.

115

227

207

200

184

160

161

Now, assuming the pages of the book or pamphlet contain 43 lines (including heads and whites), we find the number of pages:—

43) 5987 (139 = 140 pages.

43

168

129

397

387

10

16) 140 (8 sheets 12 pages.

128

12

Which, if a complete work, would, with titles and blanks, make just nine sheets.

Should the manuscript be written on different sized folios, and be interspersed with erasures and interlined with additions all through, the only *safe* way is to count the number of words the copy contains.

Suppose the words number 32090, having set 15 lines, you find 184 words in them. Proceed thus:—

$$\begin{array}{r}
 32090 \\
 15 \\
 \hline
 160450 \\
 32090 \\
 \hline
 184) 481350 (2616 = 2617 \text{ lines.} \\
 368 \\
 \hline
 1133 \\
 1104 \\
 \hline
 295 \\
 184 \\
 \hline
 1110 \\
 1104 \\
 \hline
 6
 \end{array}$$

By dividing the 2617 by 43 lines, the number in each page, we obtain 60 pages and 37 lines = 61 pages.

If it appears, however, upon careful examination, that the majority of the folios of manuscript do not differ to any great extent, and that the additions and erasures are about equal, separate the folios which differ most from the average, taking out both those that are longer and those that are shorter; count the number of lines contained in the longest and also the number contained in the shortest, and having added them together and divided them by two, the product may be taken as the average number of lines contained in that portion of copy. Should that number differ but slightly from the average of the whole, it may all be cast-off as though the folios did not vary. But if the average number of lines in the long and short folios vary a great deal from those contained in the folios of average length, the best manner will be to treat each separately.

Should interlineations, erasures, and folios of different dimensions occur throughout the manuscript only at intervals, it will be well to separate such copy from that which is more regular, and count the words it contains, calculating each portion on its merits; and a very fair cast-off may thus be obtained.

If the work be in chapters, and each chapter ends a page, allowance must be made for short pages in proportion to the frequency of their occurrence.

ESTIMATES.

Estimate for Printing and Binding a Work of twenty-five sheets 8vo, 750 copies.

25 Sheets, at 19s. 6d. per sheet*	-	-	-	£24	7	6
40 Reams, at 11s. 6d. per ream†	-	-	-	23	0	0
Author's corrections (average 2s. 6d. per sheet)				3	2	6
Press proofs	-	-	-	1	5	0
Machining, 5s. per sheet	-	-	-	6	5	0
Binding, £2 14s. 2d. per 100 (6½d. each)	-			20	6	3
				£78	6	3
Profit, 25 per cent.				19	11	7
				£97	17	10

Estimate for 500 Sixteen-page Pamphlets, with Covers, Title, and three pages of Advertisements.

16 pp. Long Primer, at 1s. 10d. per page*	-			£1	9	4
11 quires paper, at 10s. per ream†	-	-	-	0	5	6
Author's corrections	-	-	-	0	3	6
Press proof	-	-	-	0	1	0
Printing, including ink	-	-	-	0	7	6
Covers: setting 4 pp. at 1s. 10d. per page	-			0	7	4
2 quires 20 sheets paper, at 17s. 6d. per ream	-	-	-	0	2	6
Printing	-	-	-	0	5	0
Folding, stitching, and cutting	-	-	-	0	5	0
				£3	6	8
Profit, 25 per cent.				0	16	8
				£4	3	4

* To find the price per sheet or page, cast-up the work or pamphlet in the manner described on page 41.

† This quantity allows for "wasters."

JOBGING.

Estimate for 600 Double-Royal Posters.

Setting double-royal poster	-	-	-	£0	7	6
Paper for 600, at 25s. per ream	-	-	-	1	11	6
Pulling 600 at press	-	-	-	0	12	0
Ink, at 6d. per lb.	-	-	-	0	4	0
				£2	15	0
Profit, 50 per cent.				1	7	6
				£4	2	6

Estimate for 100,000 Crown 4to. Handbills.

Paper, 26 reams 1 quire, at 5s. per ream	-	£6	10	3
Setting eight bills, at 1s. 6d. each	-	0	12	0
Machining, 3s. 6d. per 1000 pulls	-	2	3	9
Ink	-	0	10	0
Cutting-up and packing (one day)	-	0	6	0
		£10	2	0
Profit, 25 per cent.		2	10	6
		£12	12	6

My object in giving the above estimates is merely to illustrate the methods whereby a correct knowledge of the price of book-work and jobs may be arrived at, without offering the quotations of prices, profit, &c., as a guide. Under some circumstances such prices and profit might be inadequate to meet the expenses of the work, whilst under other circumstances the prices might be considered fair or even too high.

In estimating, of course marginal and footnotes, table and tabular, and everything else whereby extra time may be consumed, must be taken into consideration and charged; and where doubts exist in reference to the cost of paper, or any other outlay which might be incurred, it is advisable to "take the benefit," for in the actual working out of some jobs unavoidable expenses creep in which were never anticipated.

I have not given any price in the estimates for reading, &c., having included such incidentals under the head "profit."

NEWS - WORK.

THE news-hand is quite a distinct species of the *genus* compositor as compared with the book or jobbing-hand. Having no need for the practical knowledge of the latter branches of his trade, he is at little pains to perfect himself in anything but the facility of lifting stamps; and in many instances this is cultivated to a degree of perfection little short of wonderful. Intelligent composition, however, can no more be dispensed with by the news-hand than the jobbing or book-hand, though perhaps the latter may have more time to rectify his blunders—at the sacrifice, I am sorry to say, of a decent bill of wages. It will easily be understood, then, that young and energetic compositors who have little knowledge of, and less inclination to study, what may be called the ramifications of their trade, naturally gravitate towards the news branch, where skilful manipulation is more in demand, and meets with more substantial remuneration. It is unnecessary to treat here of *all* the systems employed in the production of newspapers; but I will endeavour to set before my readers the most perfect methods in vogue, and begin with the following descriptions of London and Provincial morning newspapers, kindly placed at my disposal by friends who have come to my aid on a theme with which my acquaintance (unlike theirs) is more theoretical than practical.

LONDON MORNING PAPER.

The essentially variable conditions of Morning Newspaper printing in different parts of the kingdom necessitate, of course, considerable diversity in the details of procedure. The small sheet of an easy-going third rate provincial town has no need to resort to the expedients (born of the intense struggle for supremacy) which obtain in the case of a first-class London daily. In the latter instance, everything save absolute accuracy is rendered subsidiary to speed of production, for competition

now-a-days is so keen that in order to give the latest possible news the formes are kept open until the last moment, and scarcely any margin is allowed for the contingency of accident, either as the formes are going to press or whilst in process of machining. It will therefore be easily understood that a high degree of disciplined intelligence is indispensable in a morning paper compositor; and we will select one of the most prosperous of the London dailies in illustration of the system under which he performs his labour.

The time of taking copy varies with the days of the week, but may be roundly given as six o'clock in the evening, previous to which hour the compositor is required to "get in" his distribution. Every day the available type in the formes is allotted to the compositors by "dividers," appointed from the companionship, and paid by the men themselves, who, after an inspection of each man's cases, deposit his division of type upon his frame ready to his hand when he arrives. The paper being produced entirely on the piece system, the compositor, having taken copy, strains every nerve to secure as many takings as he can whilst there is work to give out; for the time frequently arrives all too soon when the stone is clear, and the men, as they come out, write their names upon the slate, pending the arrival of more copy. It is the plan of some proprietors of morning papers to pay the compositors for the enforced idleness of slating; but in the case of the office we are instancing this boon is conspicuous by its absence. The matter is pulled in pieces about a third of a column in length, the "pull" passing in rotation round the frames; but there is no pull-block or other tangible incentive to memory transferred with it. For several reasons it has been found that the least delay is occasioned by the simple *viva-voce* system of passing the pull; and where promptitude is so necessary, the potential dilemma of a lost or mislaid pull-block is thus averted. Having pulled his proof, the compositor places his name at the top, and when he receives it from the reader he is responsible for the correction of the whole slip; unless, indeed, there be a foul taking, an "out," or a "double," when he calls upon the delinquent to forthwith "bring up his stick," and is not put to the trouble, nor the work to the delay, of passing the galley. Speed being the primary concern, the takings short, and the frequent occurrence of make-evens unavoidable, even and careful spacing is considered a matter of small moment; and when one reflects that the newspaper is read but once and then cast aside, one can scarcely feel shocked at this lack of painstaking. Should the compositor receive his proof from the reading

closet before he has completed the taking of copy upon which he is engaged, he is allowed to "spike" the latter, providing he has set three or more lines—that number constituting the minimum of a taking. In order to spike his copy the compositor takes it back to the copy-stone, and places it upon the heap, at the same time shouting "Spike!" as an intimation to the person next out, and who proceeds to set the unfinished portion. Thus the work goes on, the intervals of "slating" becoming more lengthened as the night advances, until the Printer, receiving an official intimation from the editorial regions, "cuts" the companionship, or the greater portion of it, and announces the time of taking copy for next day. There then remains only the task of writing and filing the bills. Each man is furnished with a card on which are printed the relative numbers of lines to the galley, half-galley, quarter-galley, and so on downwards, and the prices, for each variety of type in use; and also a scale of "proportions," by the aid of which he converts the whole of his night's work into an equivalent amount of minion, which is then reduced into galleys, &c. By this means the different sizes of type are transformed into and governed by the uniform scale of minion, and the work of making out and checking the bills is thereby greatly facilitated. In most other matters of detail the work of a morning paper compositor is similar to the routine adopted in an ordinary smart news office, with the important exception (so far as his comfort is concerned) that he gets no specified time for his meals, but snatches them when he can best spare a moment. All things considered, it is extremely questionable whether the extra pay is at all adequately proportioned to the multifarious discomforts which fall to the lot of a morning paper hand.

PROVINCIAL MORNING PAPER.

The production of provincial morning papers differs in some respects from the *modus operandi* of metropolitan journals. In the Northern and Midland large towns, piece-work prevails, with one or two notable exceptions; while in the Western and South-Western centres, piece-work is almost unknown. In some towns of the North, again, morning-paper hands obtain a "day off" every seven or eight days, and in this respect have decidedly taken a lead of the Metropolitan compositors, whose lethargy in all matters affecting their personal comfort and convenience is incomprehensible to our Northern men; hence while we find so large a per-centage of "Westerns" annually converging towards the metropolis, on the other hand Lancashire

and Yorkshire contribute a very small quota indeed to the *personnel* of London daily journals. The time of taking "copy" in the North varies from six to seven in the evening, the formes being ready for press, in some instances, for early editions by half-past one in the morning, in others from half-past two to three. As a rule there is an absence of that "rush" and excitement deemed necessary by some London printers to the production of their daily issues; while in the more Western towns, where the paper is produced on 'stab wages, it is not uncommon for men to lift copy at four o'clock in the afternoon, and at eight to retire to supper, resuming at half-past nine, and continuing till half-past two in the morning. The enterprise of our leading provincial newspaper proprietors is well known; and although they do not "go in" for big sensations, or send out African expeditions, they display an amount of energy and tact in obtaining early news that is highly creditable to them, and has contributed in a large measure to their success.

The formes of the leading daily papers do not "go to press" in the usual acceptation of the term now-a-days, the web machine having been adopted on all such as have large circulations, both in London and in the provinces; and "putting the formes on machine" now means taking a matrix of the pages, casting curved stereotypes, and fixing them on the cylinders of rotary machines, connecting the paper of the web, and "striking on" the power—the machine doing nearly everything else required to "rush out" the edition—some even counting and folding the papers ready for the wholesale and retail dealers.

The mode of casting and preparing the plates is thus explained in the *Press News*:—"The casting-box is made so that a plate cast in it exactly fits the cylinder of the printing machine. When cast, it is taken to a cylindrical lathe and belted up tight. It then revolves rapidly against a tool which gives it a bevel and clears out the gutters. It is then laid face downwards in a cradle which has a bar along what would be its centre if it were a whole instead of a half cylinder. To this is fixed a blunt knife, or rubber, with a round edge, and by turning a handle this revolves cam-fashion, and so rubs the "legs" of the plate, it being cast on shallow arches, that a level under-surface is obtained just as well as though it was planed, and it fits the cylinder of the machine, when it gets there, with the greatest nicety."

PRESS - WORK.

THE various manual and mechanical operations of press-work, although they do not require the pressman to be a scholar and a man of superior attainments, nevertheless require that he should be a man of intelligence, the press-room being a department of the utmost importance. To become a thoroughly practical pressman requires much more intelligence, study, care, and judgment than is generally supposed. Many believe that a week or two's tuition ought to be quite sufficient to make a practical pressman. Those, however, who are acquainted with the whole routine of the press-room, know that "a hand at case" (I mean a simple picker-up of types) is not required to possess so much practical knowledge as the pressman; and the following remarks will be directed towards assisting the young printer to gain that knowledge, and thus become a competent workman.

In the first place, to do superior press-work the pressman should have formes of new or good, clear, and sharp type; a good press, rollers in the best condition, good ink, and good paper; and he ought to keep the utensils under his own control in the highest state of efficiency.

I will not attempt to describe the manner of putting up any particular press, feeling assured that a person of ordinary intelligence will be able to erect any of the hand presses now in use without such instructions; but I may observe, that in their erection great care must be taken that the different parts are accurately connected, fitted, and screwed together; also that the foundation on which the press is placed is unyielding and level. The latter should be carefully tested, either by placing a spirit-level on the ribs, or on the carriage after it has been placed on the ribs. Having packed the press until it is found to be level, next proceed to adjust the platen, so that it shall be perfectly parallel with the carriage. One of the easiest and best methods of doing so is to place large types at each corner of the carriage, put a few pieces of wrapping or other thick paper on each of them, and then pull the bar-handle well home.

Screw the four nuts upon which the platen hangs as tight as can be done by hand; and then, letting the handle go back, take a half or quarter-turn at each nut with a screw-key (spanner) until the whole are thoroughly tightened. Then test the evenness of impression by pulling the bar-handle so that the platen may very lightly touch the types; try each with the hand, and if the pressure on each be uniform no alteration will be required; but if it should prove to be lighter on one type than on another, unscrew the nut a little at that corner, and tighten up where the pressure is heavy, until it is equal at all corners. If a sufficient impression is not obtained by pulling the bar-handle "round," additional packing, consisting of thin sheets of metal, must in most presses be placed between the platen and the part to which it is fastened.

TO COVER A TYMPAN.

Tympans are covered with different materials—parchment, linen, and cotton being most usually used for that purpose; but when the finest work is required, silk is sometimes substituted, and is highly spoken of, although I cannot recommend it from personal experience.

For covering a tympan with parchment a skin ought to be obtained of an even thickness, and a few inches larger than the tympan-frame. Spread the skin on the stone the smoothest side downwards, if for the outer tympan. Lay the tympan-frame in the centre of the parchment, and proceed to cut the corners, and where the point grooves are made, so that the edges of the parchment will freely wrap round the frame. Then mark the position of the hooks which fasten the inner tympan, and cut a small hole for each to go through. Remove the frame and thoroughly scrape, clean, and paste it. Paste the edges of the parchment to a sufficient extent all round to cover the frame, and lay the frame in its position; then turn the edge of one side of the parchment over the frame, adjusting it over the hooks and to the point grooves, and with a thin folder tuck it in so that it wraps altogether round the frame. Proceed in the same manner at all sides, being careful not to draw the parchment out of square. After the pastè is dry, wet the parchment thoroughly—it will then shrink and become tight. The inner tympan is covered in the same manner, but with the smooth side next the platen. I would recommend that all parchments be put on dry.

To cover tympan with linen or cotton, proceed as above, but draw the material as tightly on the frame as possible, and wet it after the paste is dry.

MAKING READY.

The term "making ready" implies the various operations required after laying the forme on the press, to make it perfectly fit for printing. In the first place, I will speak of making ready book-work, assuming an ordinary half-sheet of 8vo to be laid on. Clean the carriage, so that it shall be free from dust or grit; then wipe the back of the forme with the palm of the hand or a duster; and being satisfied that nothing adheres liable to interfere with the evenness of the impression, drop it on the press, with the signature on the left hand. The forme must be placed so that when the carriage is turned in, it will be under the centre of the platen, where it must be secured by furniture or other means, so that it cannot be moved by the working of the press or by its being rolled.

For book-work the best packing inside the tympan, instead of the ordinary press blanket, is a few sheets of thin paper, about the thickness of 15 lb. double-crown. If the type be a little worn, put in about a dozen or eighteen sheets; but if the type be sharp and new, a dozen will be amply sufficient. If, however, the type be old and much worn, the press blanket will best bring up its face.

Take a sheet of paper from the heap; if the heap be dry paper, damp the sheet, and place it on the forme so that the margin shall be exactly the same on all sides of the paper when pulled; damp the tympan, and pull. The reason I advise damping the tympan sheet is that, when dry, it will be tight, and not liable to cause slurs by bagging. Having raised the tympan, paste the tympan-sheet at the corners and other parts of the edges, so that it may adhere firmly to the tympan; but keep the paste off the parts where the impression falls, otherwise an uneven impression may be produced. The sheet raised from the forme and pasted to the tympan is called the "tympan-sheet."

Pull slightly a sheet of thin paper of good quality, and note the impression. Where the pressure appears heavy, cut out the parts, and paste overlays on all parts where it is light; having done this, place the overlayed sheet on the tympan-sheet again with another over it, and pull. If any portion of the impression is still found to be uneven, rectify it, by overlaying or cutting out as may be required; then place the sheet with its overlays, &c., inside the tympan, in the exact position it occupied outside, pasting the top edge against the tympan to keep it in its place. Pull another sheet; and if any irregularity of impression still remains it may be remedied by an extra overlay or two pasted on the tympan-sheet. Bear in

mind, in bringing up the forme, that a perfectly even impression is the great desideratum, therefore do not be tempted to bring up the light parts by giving extra pressure to the whole. Use thin paper of good quality for overlaying. If any words or lines of heavy faced type are inserted in the pages they may require a thin overlay extra.

The points may now be fastened in the grooves. Care must be taken that the spurs come exactly in the centre between the pages, so that they may fall in the grooves of the cross-bar. It is an advantage to have points of different lengths; for by placing the longest point on the off-side, the pressman, when perfecting the sheets, is not compelled to reach to an unnecessary distance, and if any of the sheets should have been turned round while printing the first forme, they will be detected by the imperfect register.

In making ready a forme of 12mo, or any that requires turning in the same manner, register should be made before the forme is "brought-up," because if obliged to move the forme to make register after being properly overlayed, it would cause the overlays to be out of place.

REGISTER.

Having fastened the points, lay on a sheet and pull; then turn the sheet bottom to top, and place it on the spurs of the points so that they come through the holes they have already made, and pull again. This is for the purpose of examining the register. If the points have been put perfectly in the centre, and the furniture of the forme is true, the register should be correct. Should it be otherwise, alter the points by knocking them a little higher or lower as the case requires; and pull and turn (perfect) another sheet. If it happens that some of the pages register properly while others are out of register, the furniture of the forme must be looked to; for this is an obvious sign that the furniture is not perfectly true. If, however, the pages are all alike out of register, altering the points a little will remedy the defect.

Whether the forme is a complete half-sheet or only one of a sheet, register should be obtained before commencing to work off. The first forme of a sheet, when worked off, must be marked, by running a pencil or piece of lead along the carriage close against the chase, so that the next forme, when laid on the press, may be adjusted by the mark.

The frisket, having been previously covered with paper, is now put on. Ink the forme and pull a slight impression on the covering of the frisket, and with a sharp knife cut out the

whole of the impression of each page, so that no part of the frisket-sheet can come on the pages while printing, and cause "a bite." Ordinarily, pins are inserted in the tympan; one at the bottom of the tympan-sheet, and two at the off-side—one near the top, and the other near the bottom. Some pressmen use a piece of card instead of the bottom pin, and no pins at the side, laying on by the tympan-sheet.

When short pages occur, the resistance they exert to the pressure being less than that of full pages necessarily causes extra impression at the foot of the pages adjoining. The usual method of remedying this is by placing bearers at that portion of the forme where the short pages occur, to offer the resistance necessary to ease the impression off the pages at those parts. Reglet of sufficient thickness to stand slightly above the level of the type, placed on the chase or furniture, is sometimes used for this purpose. The reglet is pasted and laid upon the chase, and at the next pull it adheres to the frisket-sheet. But, if the forme is not too large, a wood type or two, or type-high furniture, placed on the carriage opposite the short pages, are much more unyielding and reliable "bearers," provided the forme can be rolled without interfering with them.

Twelves must be laid on the press with the signature to the right hand, nearest the tympan. The points should be both of the same length, as the spurs of each must be at exactly the same distance from the edge of the outer pages, and they must, like the points used for 8vo, &c., fall in the centre between the heads of the pages. To make register of a forme of twelves, the sheet is perfected by turning it over from one edge to the other. If the register should be out, knocking the forme a little to one side or other as the case demands, or moving the points a little, will make perfect register, unless some fault exists with the furniture. In making ready formes in which the sheets must be turned as in twelves, register should be made before the frisket is cut; for should the forme require moving after it has been cut, in all probability "bites" will be the consequence.

With a good press, tight tympan, and paper perfectly flat, there is little fear of slurring. Slurring, however, will occur at times, from a variety of causes. The platen or tympan, or some other part of the press may have worked loose; but the most usual cause of slurring is a "baggy" tympan. By the careful and attentive pressman, such annoyances are seldom experienced. If slurring occurs, it will be best, first of all, to overhaul the press; if caused by anything defective in it, on remedying the defect (tightening up a screw or two may be all

that is required) the nuisance will cease. If slackness of the tympan or the thinness of the paper be the cause of the slur, cut pieces of cork so that when placed on the furniture of the forme they will be a little higher than the type; paste and place them where the slurring occurs, and they will be taken up by the frisket at the next pull: by bearing the paper off the type till the impression takes place, the slurring will be prevented.

While printing the second forme of—or “perfecting”—any work, the pressman must now and again carefully examine the first side to see whether the pressure of the second working is causing any “set-off.” If this is not attended to, it is quite possible the work will be disfigured by the set-off appearing to an offensive degree. Should any set-off be detected, paste a thin sheet of paper at the corners, tucking the edges under both points, and fasten it over the tympan-sheet; and this must be done as often as necessary.

WORKING OFF.

The forme being in perfect working order, free from slurs, and with a firm, but not heavy, even impression, the next consideration is to work it so that the colour shall not vary nor the type fill in. Having a roller with a smooth, tacky surface, of medium softness, and ink of good body, careful and industrious rolling will go far to accomplish all that can be desired.

During the whole operation of working off a forme, attention must be paid to the roller: paper, flock, or dirt should not be allowed to accumulate upon it.

When a roller is good, but has accumulated an unusual quantity of dirt, I have found it a good plan to drop a small quantity of oil on the slab, distribute it, scrape and sheet the roller well, and clean the cil and dirty ink off the slab; and then the work can be proceeded with without further delay. If a roller be washed, delay for an hour or two will be incurred to allow it to dry perfectly, or it may “peel.” Should the forme have “filled in” at all, brush over with a *little* benzoline, and pull a sheet or two of soft paper, previous to cleaning the roller and slab.

If a cylindrical ink table be used, the colour may easily be kept uniform; but where there is no such appliance, the ink must be thinly spread on the back portion of the slab with either palette-knife or muller. In taking ink, great care should be exercised that too much be not taken at once; for, besides being liable to fill in the type, the appearance of the work will be spoiled by making the impression appear too black, and not uniform throughout the work. The best plan to secure uni-

formity in colour is, when the forme is in perfect order and the colour of the required shade, to lay a sheet on one side, so that the person rolling can regulate the colour by comparing the specimen sheet with the others as they are being worked. It is much easier to detect a difference in colour by comparison than by trusting to the eye alone. To keep a uniform colour, only a small quantity of ink must be taken at a time, and, if needed, taken often, and it must be always thoroughly distributed.

The pressman should glance over every sheet as he takes it off; he will thus readily detect "picks," "monks," or "friars."

In order that the edges of pages may not be filled in by the roller coming in contact with them, and to prevent "jumping" and thus causing "friars," in passing over the forme, corks (which are cut so as to stand as high as the face of the type) are sometimes fastened with composition in the gutters, backs, and at each side of the forme. With careful rolling, however, I consider it unnecessary to "dress" a forme in this manner.

JOB-WORK.

The making ready of circulars, billheads, and other descriptions of fine work, as regards bringing up, should be carried on in the manner already described; and where fine hair-lines, scripts, and other delicate types are introduced, the greatest possible care should be exercised in pulling, for the least extra pressure is liable to damage such type. In rolling formes of script and other tender type, the roller ought to be placed on the forme very gently, otherwise it is quite possible to break off some of the overhanging letters or fine lines.

Bills and other heavy work, although they require "bringing up" and proper making ready, do not demand such care and attention as book and fine job-work. After a proof of a poster has been pulled, and it has been corrected, examine it to see if any of the large lines, or any of the letters therein, are low. Should any prove so, underlay them with paper of sufficient thickness to make them type high. Wood type sometimes varies very much in height, and if not brought up with underlays is liable to get a less share of ink than the other portions of the forme. The forme will now require the same treatment, as regards general making ready, as has been described; but the extreme nicety indispensable in book and fine job-work is not required. Blankets are the best packing for the tympan when posters are to be worked. The rollers should be soft, and the ink thin.

When formes are much smaller than the press upon which they are to be printed, place type-high bearers, or a wood letter, on each corner of the carriage, well out of the way of the roller.

MACHINE - WORK.

ALTHOUGH there are some things in common between the Hand Press and the Cylinder Machine, especially as regards the bringing up of formes and similarity of making ready, yet the great difference in their construction and operation demands more than a passing notice in this Manual. The wide difference in the mechanism between the hand press and the cylinder machine, and also in the various makes of machines, and the skilful treatment required in their general management, have called into existence, of late years, another and separate class of workers in the business from any I have yet treated upon—the “Machinemen.” Separate, in all cases, machinemen and pressmen are not; for the necessities of many offices demand their combination in the same individual. Nevertheless, the rapid growth of machine work, the excellence expected of such work, and the great practical skill and experience required to produce that excellence, have combined to introduce an independent class of operatives skilled in that particular branch, who are recognized as “machinemen” pure and simple, are combined as such, recognise no other business, and have their own Society, similar to those of the compositors and pressmen.

My remarks on the subject of machines and machine-work must be taken as those of a workman experienced only in the management of machines to be found in most jobbing and book-houses—the single cylinder—and not as those of the machineman proper. I will, however, do my best to help those who have yet to learn to work the jobbing and book-work machine; and I hope my observations, combined with the practical knowledge to be gained only by experience, will enable the intelligent workman to become an efficient machinist.

The rapidity with which machines are worked, the intricacy of their mechanism, and their consequent liability to be damaged by the slightest oversight on the part of the machine-minder, entail upon those who undertake their management the most scrupulous attention.

The erection of machines I will not attempt to touch upon, further than to mention that some are so easily erected that they may be put up by an ordinary pressman. Others, again, are most difficult, and should be erected and put into working order by their makers; for most machines, although strongly made, possess weak points, and will certainly be damaged or broken if any attempt be made to start them when improperly put together. Those who aspire to take charge of a machine ought to make themselves acquainted with its construction; for if thoroughly informed on that point they will be better able, if anything goes wrong while working—and in some machines this occurs too frequently—to see where the disarrangement has taken place, and know how to remedy it.

The foundation for all machines must be firm; for if they are yielding and springy, the vibration caused in working will, in all probability, interfere with and spoil the impression, and is certain to cause greater wear and tear than would take place in a properly bedded machine.

Cleaning and oiling must be unceasingly attended to; in the morning especially, before starting a machine, the attendant ought to go round it and put a few drops of oil in every oil-hole—a few drops being better than an overflowing quantity—oiling at intervals also, during the day, the parts where there is most friction. The whole of the parts adjacent to the oil-holes should be wiped with a piece of clean waste previous to oiling, and the other portions of the machinery should be kept scrupulously clean. If at any time an inferior quality of oil has been used, which is inclined to clog, I have found oiling with paraffin oil of very great service; it loosens the clogged oil, and soon causes the machine to work freely. After the paraffin has been in use an hour or two, resume the usual lubricant. All the oil-holes must occasionally be cleaned out—a penknife or piece of wire being used for that purpose, and the dirt wiped off with waste. Neatsfoot and lard oils are both good lubricators; but I prefer the former.

MAKING READY.

The most perfect jobbing and book-work machines now introduced to the trade require but little special management, making ready on them being, in my opinion, almost as simple an operation as on the hand press. A great number of machines still in use, however, not being the “most perfect,” making ready on them is sometimes a difficult undertaking. It will also be found in working, that different classes of machines demand, in some measure, different treatment. But the

general practice of making ready here described will hold good, with some few modifications, on most job and book machines.

To form a ground-work for the different descriptions of packing required for different descriptions of work, fasten a piece of good smooth calico round the whole length of the cylinder within the bearers, stretching it tight with the apparatus attached thereto for that purpose. This forms a better ground than the bare metal for holding the pasted sheets; and blankets can be pinned to it, taken off, or changed with greater facility than if fastened round the cylinder. To fasten on the blanket double a few inches inside the cylinder, and pin it to the calico, keeping the pins well away from the grippers, then smooth it over and round the cylinder, and pin the outer edge. I have found it a great saving of time to keep a separate blanket for any *special* job that may be required at intervals, and when making such job ready to use no other for that purpose. A blanket need only be a few inches larger than the job it is kept especially for.

On a small cylinder machine which I use for every description of work as it comes to hand, I have a *thin* fine machine blanket under the calico, over which I always paste three or four sheets of paper, and make ready on this. This packing answers well for every description of ordinary work, but for very fine printing it is too spongy. It also answers on the description of machine I am alluding to—Pain's Demy—but on some machines it could not be used; for after working a few hundreds the outside sheets would, in all probability, be pressed away from the gripper edge of the cylinder, and have to be removed, and the forme made ready afresh. On a machine that will not allow of making ready outside the blanket, feed in a sheet, and "bring up" on it. Then feed in another sheet, with the sheet containing the overlays over it, take an impression, and examine. If more bringing-up is needed do it on the sheet already used for that purpose, and when "brought up" sufficiently place it underneath the blanket in its proper position, pasting the edges to the calico, to prevent it from moving. Try another sheet through, and if the impression is still imperfect turn back the blanket and paste the required overlays on the sheet, and when the impression is even fasten the blanket. I wish it to be understood that only the outer edge—not the gripper edge—of the blanket should be unpinned to allow of the overlaid sheet being placed in position under it. After the sheet has been placed in its proper position, and the impression has been brought up evenly, the blanket must be smoothed over and pinned as described.

I will again, for illustration's sake, select a book-work forme, and proceed step by step till it can be assumed that the making-ready is complete.

Let us presume that a poster has just been worked off and a book forme must be next laid on. In the first place the machine must be thoroughly cleaned down and the blanket taken off. If the same rollers are to be used that were used for the poster, they should be carefully scraped and then well "sheeted," and if firm and tough, sponged with a damp sponge. While the cleaning down is proceeding, slightly damp a few sheets of good paper, and paste them at the outer edges. Fasten one edge of a sheet inside the cylinder (to the calico), and carefully smooth it round, till the other pasted edge adheres to the opposite side of the cylinder, and proceed in the same manner with all the sheets. They must lay closely, and be larger than the forme. I use six or seven sheets, about 38 lb. fine double-demy for this "packing." Less might be used with new type. If the machine be an old one it will be necessary to bring up the bearers so that the cylinder will run upon them with some little pressure; but with many of the best made machines, this is of little importance.

Having packed your cylinder, clean the coffin (carriage) of the machine, and, after wiping the back of the forme with the palm of the hand or a duster, drop it with the signature next to the ink-slab. Place it in such a position that when a sheet of its paper is run through it shall appear exactly in the centre; and secure it with furniture, &c., so that the working of the machine cannot move it. To be able to get the forme in the centre of the paper, the exact length of the space between the ink-slab and the cylinder as it "grips" the sheet should be marked on a card or reglet, which ought to be kept as a gauge.

The forme being secured on the coffin in its proper position, run a sheet through, and note the impression. The impression should be very light, and it will then require to be brought up gradually by overlays. If headlines or any other parts appear heavy, cut such parts out of the top sheet of packing with a penknife, and with thin paper overlay all parts which appear light, pasting each overlay in the exact position it should occupy on the packing of the cylinder. Having done so, pass another sheet through, and again carefully examine the impression. If any parts still appear too heavy, cut out those parts, cutting down where needed to ease off the pressure, and patch with overlays where any parts still appear light. Repeat till the impression is perfectly even. By using sheets instead of a blanket round the cylinder, a much more

solid impression is obtained. The bringing up being completed, pass another sheet through and perfect it for register. Points are sometimes used on machines, but, with proper laying on, register can be got without them. Should the register not be perfect, a little judicious shifting of the front and side gauges will rectify any imperfection, provided the furniture of the forme is not in fault.

In making ready book-work I have found the paper packing not only produce better results than the blanket, but I have been able to bring up formes of type, and even stereo—which is much more difficult to manage than type—quicker and better on the hard and solid paper-packing than on the blanket.

To get register on some machines the forme will require to be shifted a little for that purpose, as the front feeding gauge cannot be altered; it is therefore advisable to make register before “bringing-up,” on such machines, for should the forme be moved in the least after overlaying, it is probable that the overlays will have to be taken off, especially overlays on lines, and the work done over again.

If slurring takes place at the gripper- or leaving-edge of the forme, the most probable cause is loose packing. With some machines, to prevent slurring is an extremely difficult matter; even where the packing lies thoroughly close to the cylinder. It is mostly caused by the machine being worn and having become “shaky” through the wearing of its bearings. When this is the case it is best to take the cylinder-bearings out and file them down till they fit properly. If slurring occurs at the gripper-edge, a good plan to abate the nuisance, and one which generally succeeds, is to nail pieces of thin leather or thick wrapper on the bearers just opposite the edge of the type, so that the cylinder, in revolving, may “bite” upon it before giving the impression. This has a tendency to steady the cylinder, and will in most cases have the desired effect; but where machines are very shaky, it may only partially remedy the evil. If the slur occurs as the sheet leaves the type, the same plan should be adopted opposite that side of the forme; and when extra pressure is given on leaving the forme, or on any part of it, the same plan will ease off the impression. Sometimes this takes off too much impression opposite the part of the forme where the pieces of leather or wrapper are fastened; but this can be restored by overlaying. In some machines a heavy “throw off” is the rule, no matter what description of job is being worked. With such machines the bearers must be kept high enough to bear up the cylinder as it leaves the forme.

The ink-duct being supplied with ink, and the vibrator (sometimes called ductor) properly fixed, run the machine through a few times to "ink up," allowing the ink to be supplied sparingly at first. Then run through a few sheets to try the colour. If this is satisfactory, the machine may be started.

Whenever the bringing-up has necessitated considerable patching with small overlays, or when single lines have been overlayed with strips of paper, it will be found advisable to paste a sheet of thin paper very sparingly all over and place it over the packing, smoothing it well down, to prevent the overlays shifting.

WORKING OFF.

The machine-minder must examine every sheet for some time after starting, to note whether any change in colour has taken place, it being quite possible, indeed probable, that the vibrator may supply too much or too little ink, and it must be regulated accordingly; at the same time he must note the pressure, which, as the packing dries, may have the appearance of becoming lighter. As at press, a constant inspection of the printed sheets is absolutely necessary.

In feeding, great care must be taken that each sheet is laid up to both side and front gauges. If this is not properly done the register must, in consequence, be imperfect. In perfecting a sheet or half-sheet of 8vo, and other formes which require turning in like manner, the sheets must be laid up to the gauge on the opposite side to the one used in printing the first forme. Twelves, and other formes which are perfected by turning the sheet in a different manner to the octavo, cannot be properly registered without first turning the forme on the machine, which must be done before printing the second side, so that the register may not be imperfect through the paper varying in width. Of course, if the sheets were all of the same width, the forme would not require turning to secure good register. Set-off sheets, as at press, must be used when needful.

When it is required to lift and turn a forme damp the packing just before doing so, to soften it a little, as the impression from the forme when turned will be altered, and the soft packing will sooner adapt itself than the dry hard packing. The forme will most likely require an overlay or two to make the impression even.

Whilst working off, particular attention must be directed to the rollers; dirt must not be allowed to accumulate on them.

Simply washing the ink slab will remove a considerable quantity of dirt from good rollers, and will in some instances clean them sufficiently to allow of a job being finished without further delay. The usual plan in some book offices where I have worked (as compositor), was to wash the rollers every dinner-time and also in the evening before leaving the office. This I consider a bad plan; for under such treatment the rollers are soon deprived of their tackiness, and the face becomes leathery and cracked. A better plan is to slightly oil, scrape, and sheet them: if good rollers, they can be thoroughly cleaned by this plan, without doing them any mischief. If they are hard, rub them down with a slightly damp sponge before using them. It will be found in working long numbers that the ink in the duct becomes gradually charged with flock and other dirt, which has been left by the vibrator on the ink-cylinder. This, if allowed to accumulate to any great extent, will interfere with the supply of ink required for the forme, by partially obstructing its passage through the ink-duct; and will thus cause the forme to work light. It is therefore necessary to clean out the duct occasionally and renew the supply of ink.

When working formes with ink which is inclined to dry quickly, it is advisable before leaving off for the day to drop a little oil on the slab and run the machine through a few times to well distribute it. This will prevent the surface of the rollers being spoilt by allowing the ink to dry on them. The forme must be brushed over immediately after. Before commencing in the morning, scrape the rollers and clean the machine-slab.

For book and other light work requiring extra strong ink, the rollers should be moderately tough and elastic. Hard rollers ought never to be used by themselves, on account of their liability to "jump;" but, if in good condition, they may be used with advantage in conjunction with rollers which are more pliable.

When a machine is used principally for posters, news, and other rough work, and only occasionally for book-work, as is the case with my own, and especially when a short number is all that may be required of a book-work forme or other light job, it is most expeditious to put the ink on the machine slab from time to time with a hand-roller, having distributed it on an independent ink-slab. By so doing, no time is wasted in cleaning out the ink-duct, supplying fresh ink, and getting the supply of ink adjusted, so that the vibrator shall supply only the proper quantity.

When working posters where large and small type alternate, allow the ink-duct to supply only sufficient ink for the smaller

type, and with a knife or small roller put extra ink on the slab opposite the large lines.

As a rule, the best roller should always be the last to run over the forme; but if it is too new, let it be placed in the centre, where it is not likely to affect the colour by removing the ink.

JOB-WORK.

For all light job-work I would recommend the same packing for the cylinder and the same general making ready as already described for book-work. For rule work this is especially adapted, as the sheets may be cut to ease the impression off any rule or portion of a rule. For posters a good stout machine-blanket is best. As to underlays and other matters in connection with making ready a poster forme, proceed in the manner recommended for doing the same at press; and after the forme has been dropped on the machine, unlock and plane it well, and then lock up. If not unlocked and planed after being underlayed, both reglets and spaces will work up. On this account, underlaying at machine should be avoided as far as possible, especially if long numbers are to be worked.

For working posters on machine, the rollers should be softer than for fine work, and the ink thin. Black ink can be reduced to any consistency by using benzoline, which allows of its drying quicker, without spreading, than when reduced with thin varnish. Paraffin oil also is an excellent medium for reducing black ink, and is not so dangerous as benzoline. I always use *paraffin oil* for thinning black and common coloured inks, and recommend its use.

BLANKETS.

Machine blankets must be well cleansed occasionally, or they are liable to become so foul and uneven with dried ink, paste, and dirt as to injure the type, and render the bringing up of formes a work of considerable time and difficulty. They should be soaked for an hour or two in water in which a little washing soda has been dissolved, and then well soaped and rubbed by hand or scrubbing-brush. After which they must be rinsed thoroughly in several clean waters to remove all soap.

THE PLATEN MACHINE.

For job-printers the small platen machines are invaluable, no press being equal to them for speed, facility in making ready, ease in working, and for excellence in printing. Making ready on them needs no particular description, the method being similar to that already described for hand-press.

COLOUR PRINTING.

ON this subject my remarks will of necessity be incomplete, so far as the whole subject of Printing in Colours is concerned, for colour printing includes other processes independent of typography. My remarks therefore will refer solely to that branch of the art practised by the letter-press printer; and will include the combinations of the various pigments suitable for his use, with their appropriate varnishes; and the results as regards working and drying properly will be kept in view. The laws of contrast will be shown, and the colours that harmonize best will be given. I will also endeavour to give such hints as are calculated to assist those who may be inexperienced in the blending of colours, and in their manipulation at press or machine,—such hints as will be of service in the event of their having colour-work to print. As the great increase of late years in colour printing, and the still increasing demand for such work, make it essential that this subject be treated in a manner that may be thoroughly relied upon, I have not trusted to my own experience only, but have submitted this article to an authority more competent than myself—a gentleman who has for many years managed one of the principal colour printing establishments in London, who kindly offered to revise and correct the colour portion of this work.

To produce striking and pleasing results with colours, some knowledge of the laws that regulate their harmonious blending is necessary. It is well known that certain colours, when used in conjunction with others, not only heighten their effect, but, by contrast, make such colours appear more pure; for instance, a red line surrounded by green, or with a green rule at top and bottom, looks a brighter red than if it stood alone; and with most other colours it is the same. The following are complementary colours :—

Orange is complementary to Blue.			
Yellow	“	“	Purple.
Green	“	“	Red.
Violet	“	“	Greenish-Yellow

With these colours the most brilliant results may be achieved : but when not judiciously blended, the brightness of one colour may be marred by its contrast with another. In order to guard against this it will be well to remember, when it is desired to have a particularly bright-looking poster, or other job, that

Blue and Yellow are better than Blue and Green.		
Blue and Yellow	„ „	Green and Yellow.
Yellow and Red	„ „	Yellow and Orange.
Yellow and Red	„ „	Orange and Red.
Blue and Red	„ „	Blue and Violet.
Blue and Red	„ „	Red and Violet.

Colours may be multiplied by admixture; but this should not be attempted unless the colours are clean and good. Where certain tints or modifications of different colours are required, the proper method to obtain them is by mixing such proportions of colours as will produce the required tints; and if it is desirable that lighter shades of colour should be used, they may be obtained by adding flake white or white ink till the desired tint appears. The following colours and shades may be produced by intermixing:—

Carmine and Yellow	-	make	-	-	Vermilion.
Vermilion and Black	-	„	-	-	Brown.
Carmine and Blue	-	„	-	-	Purple.
Blue and Black	-	„	-	-	Dark Blue.
Blue and Yellow	-	„	-	-	Green.
Black and Yellow	-	„	-	-	Bronze Green.
Blue, Black, and Yellow	-	„	-	-	Deep Green.

The following list of combinations in colours for working bills or other jobs, I extract from “Colour Printing,” by F. Noble, in the *Printer's Register* :—

Combinations of colour in two workings on White ground:—

Bright Green and Vermilion Red; Bright Green and Carmine; Bright Green and Purple; Bright Green and Warm Brown; Blue Green and Orange; Ultramarine and Carmine; Ultramarine and Maroon; Ultramarine and Warm Brown; Light Blue and Bright Orange; Purple Lake and Bright Yellow; Crimson and Bright Yellow.

*Combinations in two colours upon Pale Yellow grounds which incline more to Lemon than to Orange:—*Yellow Green and Carmine; Yellow Green and Maroon; Sage Green and Maroon; Sage Green and Carmine; Bright Green and Red Brown; Bronze colour and Carmine; Bronze colour and Purple

*Combinations in two colours upon Pale Yellow grounds which incline more to Orange than to Lemon:—*Bright Pale Ultra and

Orange; Bright Blue Green and Orange; Bright Blue Green and Carmine; Bright Ultra and Carmine; Bright Ultra and Maroon; Blue Green and Maroon; Bright Ultra and Bronze colour; Bright Ultra and Red Brown; Bright Ultra and Red Purple; Blue Purple and Orange; Blue Purple and Carmine.

*Combinations in two colours upon Pale Blue grounds:—*Deep Ultra and Red Purple; Deep Ultra and Carmine; Deep Blue Green and Carmine; Bright Green and Red Purple; Bright Blue and Red Purple.

*Combinations in two colours upon Pale Purple grounds:—*Red Purple and Ultra; Red Purple and Blue Green; Blue Purple and Crimson; Ultramarine and Carmine.

*Combinations in two colours upon Pale Green grounds of a Bluish tone:—*Ultramarine and Carmine; Ultramarine and Red Purple; Deep Blue Green and Red Purple; Deep Blue Green and Carmine; Deep Blue Green and Maroon.

*Combinations in two colours upon Pale Green grounds inclining to Yellow:—*Bright Green and Carmine; Bright Green and Purple; Bright Green and Red Brown; Bright Green and Maroon; Sage Green and either of the above.

*Combinations in two colours upon Pale Pink grounds:—*Carmine and Bright Ultramarine; Carmine and Bright Green; Carmine and Blue Purple; Carmine and Bronze colour; Purple and Bronze colour; Light Ultra and Bronze colour; Red Purple and Yellow Green.

*Combinations in two colours upon Deep Buff grounds:—*Maroon and Deep Blue Green; Maroon and Deep Ultra; Deep Purple Brown and Carmine; Deep Blue Purple and Carmine.

*Combinations in two colours upon Light Brown grounds:—*Carmine and Deep Purple; Carmine and Deep Green; Carmine and Black; Maroon and Deep Green; Red Purple and Deep Green; Deep Brown and Deep Green; Deep Brown and Black.

*Combinations in two colours upon Green grounds of medium strength:—*Deep Green and Deep Purple; Deep Green and Maroon; Deep Green and Carmine; Black and Carmine.

It will be noted in the foregoing examples that the governing principle in most cases is that one of the contrasting colours is a deeper tone of the colour of the ground; if it is necessary to use gold instead of one of those contrasting colours, the reader will always be right if he retains the colour which is a deeper tone of the ground and substitutes gold for the other colour. Thus, in the combination upon a pale pink ground, carmine

and ultra are given; the blue should be omitted and gold used instead—and so on throughout the whole series.

*Combinations of three colours upon White grounds:—*Carmine, Bright Ultra, and Purple; Carmine, Bright Green, and Purple; Carmine, Ultra, and Purple Brown; Blue Purple, Maroon, and Yellow Green; Purple, Orange, and Blue Green.

*Combinations in three colours upon Pale Pink grounds:—*Carmine, Ultramarine, and Bronze colour; Carmine, Blue Purple, and Bronze colour; Carmine, Purple, and Blue Green; Red Purple, Bright Blue Green, and Bronze colour; Bright Chinese Blue, Carmine, and Purple.

*Combinations in three colours upon Yellow grounds:—*Carmine, Ultra, and Purple Brown; Carmine, Yellow Green, and Purple Brown; Carmine, Yellow Green, and Purple; Deep Brown, Ultra, and Purple.

NOTE.—Where Ultra is used upon Yellow grounds the Yellow should incline to Orange.

*Combinations in three colours upon Blue grounds:—*Carmine, Ultra, and Purple; Carmine, Blue Green, and Purple; Carmine, Yellow Green, and Blue Purple.

*Combinations in three colours upon Pale Purple grounds:—*Purple, Ultramarine, and Bright Green; Carmine, Ultramarine, and Bright Green.

NOTE.—Combinations given for Pale Blue grounds also suit Purple grounds.

*Combinations in three colours upon Pale Green grounds:—*Ultramarine, Bright Green, and Carmine; Ultramarine, Bright Green, and Purple; Carmine, Purple, and Yellow Green; Bright Green, Carmine, and Bronze colour.

NOTE.—By bright Green is meant the middle shade of Green Lake; by Blue Green is meant the deepest Green Lake and White; by Bronze colour is meant medium Chrome and a little Purple Lake.

THE COLOURS.

REDS.—*Carmine:* A brilliant and deep colour, but very expensive. As there are many imitation-carmines it would be safest to purchase the colour only from some first-class house, where it will be most likely to obtain the genuine article. A good carmine will cost about £3 10s. per lb., and one pound will make about four pounds of very superior ink. Mix in thin varnish, adding the colour and grinding it thoroughly until the varnish will hold no more.* This colour requires well grinding. Carmine is not a good drier, it is therefore necessary to add

* It is almost impossible to grind colour in strong varnish. The thinner the varnish the better, as the sticky varnish prevents the muller from working.

gold size in the proportion of about a quarter-ounce to a quarter-pound of ink. In use it will require a good firm and tacky roller—not “green.” In working, should the ink be found to be too stiff, it may be thinned to the necessary consistency to work freely by adding more thin varnish, care being exercised so as not to destroy its richness by reducing too much. This ink if properly made ought to work the smallest type as clearly as the best black. Carmine mixed with white ink produces pink. Mix with blue and white for mauve and lavender; with black for rich brown; for rich chocolate-brown add a little Chinese blue and black. Mix with ultramarine blue for purple.

Vermilion.—A bright red, works well, and has a good body. Being softer, it takes less grinding than carmine. Mix, as with carmine, in thin varnish, thinning to suit the quality of the rollers or the job in hand.* This colour, if mixed with too much varnish, is liable to leave the varnish and sink to the bottom; and if worked in this condition the colour will be left on the forme. If the ink be properly made, the roller ought to take it up well when distributing, and exhibit as bright a colour on its surface as that on the slab; and, in working, all the colour should leave the form at each impression. This colour may be intensified by adding a little carmine, or scarlet or crimson lake, which give it a brighter and richer red. For hard, dry, or enamelled papers add tube dryers or gold size. Vermilion mixed with black produces brown, with French yellow it forms a bright orange. For flesh tints or salmon-colour, mix with white or thin with extra quantity of varnish. Light or dark flesh tints may be secured by adding burnt sienna, or lake and umber, according to the tint required. Vermilion will not print from copper-electros unless they are silver faced.

Scarlet and Crimson Lakes.—Beautiful transparent reds, rather hard to grind, and do not contain so much body as vermilion or carmine. Require mixing with thin varnish, and must be ground with great perseverance. Dryers must be used, mixing about a quarter-ounce of gold size to a quarter-pound of ink.

Magenta Lake.—This is a crimson pigment. It is a soft colour and may be easily ground. Mix with thin varnish. Works well. If required to work on hard, dry, or enamelled papers gold size in the proportion of one-eighth of the varnish used in making should be added. Good firm tacky rollers required in working. Mixed with white it produces pink; and with black, chocolate. May be purchased at from 4s. to 6s. per lb.

* All colours should be ground in as little varnish as possible, and then be gradually reduced by adding a little more thin varnish. When reduced to the proper consistency, add a little strong varnish.

BLUES.—*Prussian Blue*: Deep bronze blue. Very hard to grind. Mix with thin varnish. This colour may be ground by hand in small quantities, but great perseverance will be required to do so, and it should be ground and re-ground; it is, however, when thoroughly ground and mixed, an excellent colour to work, and requires no dryers. Mixed with pure burnt oil, it makes bronze-blue; mixed with flake-white it gives bright blues; mixed with yellow chrome it forms green. Use a good firm roller.

Ultramarine.—The pigment used to manufacture what is called ultramarine blue ink, is an article which has been especially adapted for that purpose, the genuine ultramarine being found unsuitable. Inks made from some of the so-called ultramarines, are very difficult to manage in working, and it is no uncommon circumstance to find part of the colour leaving the varnish and remaining on the forme; and when this occurs, it nearly always happens that in formes set with different descriptions of type—as displayed bills, &c.—the deposit accumulates more rapidly on some portions of the forme than on others, so that after working a hundred or two some of the lines appear to have more impression than others, and the type seems to have been “rounded” by the action of the cylinder. An ink of this description is best laid to one side, to be used only for posters containing large type. Where this cannot be done, and the job in hand must be finished with the unsuitable ink, I know of no better manner of doing so than by occasionally lifting the forme, cleaning—scraping the larger lines is sometimes necessary—well with paraffin oil, wiping off as much as possible with a piece of clean waste, running a few clean sheets through, and then inking up again. It is best always to lift the forme rather than do this on the bed of the machine. Mix, for machine, with middle varnish, adding a little oil-dryers; for fine work and press, mix stiff with long varnish, using a little gold size for dryers. Good firm rollers are required for this ink. Mix with white for light blue, with crimson for purple, with white and carmine for mauve and lavender.

Cobalt.—This makes an excellent ink when mixed with middle varnish, and it both prints and dries well. Being a transparent colour it is not suitable for printing over other colours. It is much easier to manage than ultramarine, though not quite so brilliant. For different shades and colours it may be mixed in the same manner as ultramarine; and it is an excellent colour for tints, mixed with varnish or white.

Purple.—In addition to the several methods of making purple ink by admixture, pigments may be obtained wherewith to

manufacture purple ink. Where depth of colour is required mix very stiff with thin or middle varnish, according to the requirements of the job for which it is wanted, and add dryers—about one-sixth of the quantity of varnish. Purples may be mixed with other colours for making different hues and shades.

GREENS.—Deep Green Lakes: These greens may be obtained in any shade, from the lightest to the deepest, which prints almost black. Mixed with middle varnish they work and dry well. The colour may be lightened or darkened by adding other greens of lighter or darker shade. If mixed with thin varnish, for machine work, a little dryers will be required.

Burnt Sienna.—This pigment, mixed with thin or middle varnish, makes a bright red-brown, but it does not possess sufficient depth for some descriptions of work. Requires no dryers and works well.

Umber.—Mix stiff with thin or middle varnish. This is a deep brown, but is neither a bright nor rich colour. Mixed with magenta or purple it forms a rich brown. Works and dries well. Burnt umber and white mixed make stone-colour.

York Brown.—Fit for common work, and mixed with middle varnish it prints and dries well.

Maroon.—Rich brilliant brown. Mix in thin varnish, adding colour until it will take no more, and adding gold size in proportion of quarter-ounce of size to quarter-pound of ink; and by using a firm tacky roller (not green), this ink should work as well as fine black. It may be darkened by adding a little black, by which it is made a dense chocolate-brown.

Indian Red.—This is a reddish-brown, resembling the mixture of vermilion and black. Mixed with thin varnish it produces an ink that may be used for the smallest type. May be darkened by the addition of a small quantity of black. No dryers are needed, unless for dry, hard, or enamelled paper.

Brilliant Lake.—This is a good substitute for carmine. Ground with thin varnish it produces a rich colour, and dries with a gloss. A little gold size must be added.

Primrose, Medium, and Chrome Yellows.—Mix stiff with thin or middle varnish if wanted for press; for machine reduce with thin varnish. No dryers. By admixture with white, tints are produced. Medium or lemon-chrome mixed with vermilion produce orange.

Yellow Lake.—This is a transparent colour, and on that account may be found valuable in some descriptions of work. Mix as above, and use gold size dryers.

Yellow Ochre.—Mixed as above, works well, and requires no dryers, except for hard, dry, glazed, or enamelled papers.

WHITE INK.—*Flake White*: This pigment is almost universally used in the production of white ink. It should be mixed for press very stiff in middle varnish. Being soft, it does not require much grinding. When required for machine, reduce it with thin varnish. No dryers are required. This ink is extremely useful to the colour printer, as it forms the basis of nearly all tints. It is used to lighten blues, greens, &c., and in an infinite variety of other ways, some of which are noticed in this article when mentioning other colours.

BLACK.—Although it is unusual for printers to manufacture their own black ink, it may nevertheless be useful to know how to make an ink that will be adapted to print any special work. For printing on enamelled cards or paper, to make ink that will not readily rub off, mix Paris black in strong varnish, adding Chinese blue and a little gold size. Good black ink may also be made to answer the purpose of printing on enamelled surfaces by mixing ivory black with it, adding as much as the ink will take up.

To mix the colours, a muller and palette-knife are necessary; a fine-surfaced iron ink-slab or a lithographic-stone being excellent things to grind them on. If possible, procure the colours in powder; or if that cannot be done, choose such as are easily ground. Take a little varnish and lay it on the slab, and with the palette-knife mix the colour until the ink is of the required consistency. See that the colour is thoroughly incorporated with the varnish, for upon this depends the quality of the work it will produce. If not properly mixed, scrape the ingredients together with the palette-knife, and grind them with the muller until every particle of colour is incorporated with the varnish.

Varnish may be made by burning (or boiling) linseed oil and adding yellow resin. The boiling or burning should be done in the open air. On an emergency, Venice turpentine may be used instead of varnish; or for fine ink, Canadian balsam of the consistency of honey answers admirably.

Most coloured inks are liable to skin on the surface, some of them to a great extent; and this skinning causes much waste. With the best descriptions of ink, skinning may be prevented by covering them with a very thin layer of neatsfoot or olive oil; over the common inks I usually keep a half-inch or so of paraffin oil. Magenta, mauve, and other aniline colours, are subject to solidify to such an extent that nothing but re-grinding will make them work. When this takes place, they should be mixed in varnish, and ground up in the usual manner.

Paraffin oil is an excellent thing to use for thinning either

coloured or black inks for common work; it dries quickly, and "spreads" very little, however much the ink has been reduced. Having used it for a number of years, I can recommend it in preference to boiled oil or turpentine.

Printers mixing their own inks will find it best and most economical to make only sufficient for the job in hand.

PAPER.—To produce good Colour Printing, great care should be taken to secure a proper quality of paper, as a rough, unglazed paper not only takes more ink, but is liable to fill in fine engraving and small type; and on such paper the colours look dull. If it is necessary to use a plain paper, it should be glazed; but a dull enamelled paper is best for colour work, because the colours dry more quickly, and look brighter on it.

COLOUR GRINDING.

In grinding colours, great care should be taken in mixing the various pigments, as different colours require different treatment. Hard colours, such as Chinese blue and crimson lake must be ground very stiff, so that when ground they should be like shavings. They may be reduced sufficiently for working by adding a little thin varnish. It is impossible to grind hard colours if too much varnish is used. The softer colours, such as vermilion, should be ground thinner, and require less grinding.

An old litho stone is an excellent thing to grind colours on, as it is very smooth, and is easily cleaned.

Printers who have a variety of colour work would do well to keep the pigments of the following colours on hand, as a great many shades and tints can be produced by them:—

Crimson Lake, about	-	-	£1	0	0	per lb.
Vermilion	"	-	0	4	0	"
Chinese Blue	"	-	0	5	0	"
Cobalt Blue	"	-	0	5	0	"
French Yellow	"	-	0	3	0	"
French White	"	-	0	2	6	"
Flake White (for common work)			0	0	9	"

Also, strong, middle, and thin varnishes.

Any shade of pink can be produced by adding crimson lake to white; any shade of blue by adding blue to white; any shade of orange by adding vermilion to French yellow; any shade of green by adding Chinese blue to French yellow; if a cold green is required add a little white. A very little Chinese blue will change yellow into green, as it is a very

powerful colour. Violet can be produced by adding a little cobalt blue to crimson lake; if a pale violet is required add a little white. If a buff or flesh colour is required, add a little vermilion and yellow to white. In any colour where white is used a little strong varnish should be added, as it is a very heavy colour, and requires a stronger varnish to carry it. On no account should black be used with blue or green, as it spoils the brightness of the colours.

Cotton wool is the best for dusting on bronze or colour, and soft rags for dusting off.

PRINTING IN COLOURS.

The forme having been divided, if thoroughly clean, may be made ready in the usual manner. If a poster, circular, or card, the formes can be worked by "lay" only, points not being necessary. The sheets, however, must be laid with the greatest accuracy, and care taken that they do not move while the tympan is descending. But should the forme be very intricate, so far as the registering of the various colours is concerned, it will be the safest plan to use points. The points used in printing the first of a series of colour-formes are different from those used for book-work. They are made of thin sheet-iron, with spurs, which will stand, when the points are fixed on the forme, a little higher than the type, and are fixed on the furniture by small nails that are driven through holes made for the purpose. For a job to be worked in four colours, points with not less than three spurs must be used, so that there will be no occasion to use the same point-holes a second time. For a particularly fine job the points should be so placed that they may perforate the paper close to the edge of the margin, on each side of the forme, so that after the work is finished, the perforated portion may be cut off, to remove the unsightly point-holes. After the first forme has been worked, the regular points, or paste-points, must be used, fresh point-holes to be taken for each colour. In this way an accurate registering of the colours will be secured; for, should the same point-holes be used for a second colour, any damage they may have received in working the first will endanger perfect register.

Generally speaking, coloured inks are more difficult to work than black; it is therefore of the utmost importance, in printing in colours, that the forme should be thoroughly inked, and that when extra colour is required it should be taken in as small quantities as is compatible with the job in

hand, and distributed properly. To do colour work in a satisfactory manner, and with the least expenditure of time, it is advisable to have rollers cast on purpose and kept for colour work only. They must be a little firm—as firm as those used for the finest black inks—and have a smooth, tacky surface. Black rollers cleaned for a coloured job only cause annoyance, especially if they are cracked or cut on the surface, for, while in use, the black ink harboured by the uneven surface will gradually work out and damage the colour in use.

Working colours on machine needs no further description than that which is contained in the article “Machine-work,” and what is given in this section concerning the colours. The register of the finest descriptions of work is secured by using points; the first forme, as at press, carrying the spurs. For posters and general jobbing, however, careful “lay” on good machines is all that is requisite.

As soon as one colour has been worked, either on press or machine, scrape off all ink that has not been distributed, and put it back into its proper ink-tin. Oil and scrape the rollers, as already described, and thoroughly clean the ink-slab. It is of the utmost importance that before commencing to print another colour the slab, rollers, and everything about the forme should be perfectly clean.

If red or any other ink has been used that is difficult to remove, it will be found best to roll the forme with an oily roller, by which means the ink is softened and can be more readily cleaned off.

At either press or machine, registering the colours is done in a manner similar to that of making register with any book-work or other formes.

Rollers for colour work should be cast expressly for that description of work, and they must be kept for colours only. It is advisable to cast them some time before they are wanted for use, to allow of their toughening to some extent.

Dampness in the atmosphere causes new soft rollers to become too “green” at times to take up the colour, and when this happens a firmer roller must be secured; but if this is out of the question and the work must be proceeded with, the ink may be adapted to the requirements of the rollers, by reducing it with thin varnish, or by adding a small quantity of oil to reduce the “lugg.”

In working quick-drying colours the roller should be distributed constantly, to keep the colours in working condition; but if the colours, notwithstanding all the diligence of the pressman, dry on the slab or roller, clean both with paraffin, sheet well,

getting all thoroughly clean ; and if the rollers be firm and dry-faced rub down with a not too damp sponge, and ink-up again. When rollers are in proper condition they will take up the ink well, showing as fine a colour on their surface as on the slab, and leave it evenly and in full body on the forme. If the rollers do this properly, and there is then any fault in working, the quality of the ink, or condition of the paper may be suspected.

GOLD PRINTING.

The usual method of printing in bronze is to take impressions with ink composed of strong varnish mixed with French yellow, and then apply the bronze with a piece of cotton wool. After the ink has had time to dry, with a clean rag or silk pocket-handkerchief remove all superfluous dust. This description of printing is much improved in appearance if done on enamelled or highly-glazed paper or cards, for which description of printing add a little gold size.

Printing in gold leaf requires much more care and skill than with bronze. Ink should be made with chrome yellow mixed with strong varnish. Before taking impressions, cut the gold leaf in strips wider than the line or lines it is intended to cover. Having all prepared, ink the forme in the usual manner, and pull. The gold leaf is then laid on carefully, lay a sheet of writing paper on the top and smooth over with the hand, in order to make it stick all over the inked parts, and when sufficiently dry it may be cleaned off in the same manner as bronze. If this description of printing or gilding is properly managed it will be found a great improvement on bronze printing.

DAMPING PAPER.

IN many offices the practice of working paper dry has gained ground to a great extent within the last few years, on account of the hurry with which much of the work is wanted and executed not allowing sufficient time for damping. Notwithstanding the pressure of business, the improvement in the appearance of work printed on damped paper over that printed on dry makes it essential that, even under pressing circumstances, most descriptions of paper should be damped before being printed. I do not, however, advocate that all papers be damped ; fine writing or other glazed papers would simply be spoilt by the process. And as most fine-surfaced papers *look best* when printed dry, of course some discretion must be

exercised as to whether it is advisable to damp the paper given out for a job, or not. Most printing-papers—even the better class of paper suitable for fine book-work—will be improved for working purposes by being “wetted down.” But when stiff ink is to be used, the paper must not be made too damp, or it will be liable to “peel” and its surface remain on the type; care, therefore, must be taken that in wetting paper it is not overdone. I cannot give any rule to suit all classes of printing paper; some, being soft, require very little water; others, being hard, will take more than double what is needed in the case of the softer paper; and those of medium softness, through being of different qualities, must be treated each on its merits. In any case, I am not an advocate of over damping—I like the paper so that the dampness can be perceptibly felt, but not so as to make the paper feel too soft or rotten. About two “dips” to the quire for good 40lb. double demy may be taken as a fair quantity for either book-work or posters. The workman can learn only by experience how to treat the different papers which must be damped before working.

The method of “wetting down” is most simple, and needs no lengthened explanation. The paper being usually folded in quires is taken by the fold in one hand and by the edge with the other; the edge of the quire is raised, and the back is plunged into the water, when the hand holding the edge allows it to slip, while the hand holding the back of the paper pulls it briskly under and out of the water; the edge is again taken hold of, and the quire laid on the damping-board. Should it require more than one dip to the quire, about half of the paper is opened out and laid flat, and the remainder of the quire is again taken up and treated as at first, then opened in the middle and laid flat. Each quire is treated in a similar manner until the whole is damped. It is usual when damping flat paper to take a quire or thereabouts, run it through the water, divide it in the centre, and turn so that the wet sheet falls in the middle of each lot. Place a waste sheet and a wetting board on the heap. After allowing it to soak for an hour, heavy weights must be put on the top of all. Five or six hours after being damped down, the paper should be well turned, so as to allow all creases to press out before being used.

CASTING ROLLERS, &c.

It is not unusual, after trying every method to make a forme work properly without being rewarded with success, to exclaim,

in disgust, "It is of no use trying to do good work without good rollers!" And, after having changed the roller, to ejaculate with pleasure, after the next pull, "What a difference a good roller makes!" Rollers truly are the most important implement, when type and press are good, to secure first-class work; such being the case, no pains and no reasonable expense ought to be spared to have good rollers always at hand, especially in country places, where it is impossible to send to the roller-makers for a supply.

My views on this subject may not be in accordance with the opinions of some printers; but those who have had sufficient experience with rollers and roller-making will, I think, agree with me. I would advise that rollers of different degrees of elasticity and tackiness be cast, and always kept on hand; for, on account of the sudden changes in temperature which often take place, it will be found that a roller which works well one day will not give satisfaction the next, although it may still be in good condition—it may either be too soft or too hard. It is therefore advisable to have others of a different quality to replace it. With spare rollers to choose from, a good quality of work may always be secured; and rollers which may not be suitable for one job, or a certain temperature, will not be spoiled through the printer being compelled to use them under adverse circumstances.

I would recommend the following ingredients and proportions for hand-press rollers of different qualities, to suit any class of work and temperature:—

6 lb. glue to 6 lb. treacle for springy tacky rollers.

4 lb. glue to 6 lb. treacle for a nice medium roller for use with good ink in temperate weather.

3 lb. glue to 6 lb. treacle for cold weather.

3 lb. glue to 7 lb. treacle is suitable for frosty weather.

It will be found that the above proportions, if the following instructions are properly carried out, will make rollers that are suitable for any description of work.

[Another receipt I have tried—6lb. of glue, 6lb. of treacle, and half-a-pint of glycerine—appears to make most excellent rollers; but whether they are actually more serviceable than those made without the glycerine I am not prepared to say. Having only tried the receipt for a year or two, I consider the time insufficient to thoroughly test it; but I believe the glycerine answers the purpose for which it is used,—it prevents the surface of the rollers cracking.]

An ounce of Venice turpentine is also sometimes added, to give the rollers additional tackiness.

When Venice turpentine and glycerine are used, a smaller quantity of treacle than is recommended in the foregoing must be used.

As the strength of various glues differs materially, it is advisable to use the same description of glue for roller-making whenever new rollers are required; for by so doing their firmness may be regulated to a nicety, as the pressman will become acquainted with the strength of the glue and the proper proportions of treacle, &c., it will take.

I would not have referred to the strength of glue, had I not latterly found such a wide difference between some descriptions. My last supply, which I have had in use a couple of years, takes the enormous quantity of 7lb. of treacle to 2lb. of glue to make a moderately soft roller! I have never experienced anything like this before.

To prepare glue for making rollers it must be soaked in water for four hours, if thick dark-looking glue be used—if fine light-coloured glue, three hours will be sufficient; then drain the water off, and leave the vessel containing the glue covered till morning. Now put the glue into the melting-pot and allow it to melt thoroughly, then add the treacle, and boil gently for three-quarters of an hour, when, having previously oiled and slightly warmed the mould, and fixed the stock, the composition may be poured in.

Before casting rollers it is a good plan to tie a page-cord or thicker twine round an inch or two of each end of the roller-stock, by which means the composition will be prevented being torn off. After casting, remove the superfluous compo. from the ends by encircling them with a piece of cord and pulling it till it cuts through. The rollers will be fit for work the day after casting; but great care must be taken when working a new roller that it does not “drag” off the stocks or “peel.” If it displays any symptoms of either, or of being too “green”—a too “green” roller will not distribute properly and appears damp or greasy—hang it up for a day or two, under these circumstances, in a current of cool air, after smothering it with common ink.

From beginning to end the greatest care is required. The proportions of glue and treacle must be properly regulated. While boiling the ingredients, the water must be kept well round the vessel containing the composition; for, if allowed to fall below the level of the composition, in all probability the mass will be spoilt by the treacle “candyng.” The pouring into the mould must be done slowly, or air-bubbles may spoil the rollers; and if boiled too little or too much, the com-

position will be rendered either too soft and tacky or too hard and suctionless. It will be well also to consider the temperature: a greater proportion of glue will be required in hot than in cold weather, and the reverse. But if rollers are kept made with the proportions recommended above, one or other of them will suit any temperature or weather.

For machine-work the rollers should not be made any softer than the proportions of 3 lb. glue to 6 lb. treacle will make them, even in cold weather.

Never allow the glue to soak too long, as it will take up too much water; the water soon evaporates, and the rollers become too hard and dry to use for press. For machine, in addition to becoming too hard and dry, they shrink to such an extent that they will not roll the formes. Sometimes water is added when composition will not re-melt properly; although it may make the composition "pour," the rollers made from it will be rotten, and will soon become unserviceable.

If made as here recommended, and they receive proper care and treatment, rollers will continue in good working order much longer than is generally supposed.

While speaking of roller-making, I may mention that during the Russian war I was engaged by one of our government printers to proceed to the Crimea as printer to the army. A complete small printing office was provided; but the rollers seemed a knotty point—being so far from London, how could they be renewed? The question being discussed, I suggested that I should be supplied with glue, treacle, and roller-mould, and promised I would cast our own. This was evidently thought strange, coming from a compositor. And I was asked, "How long can you make your own rollers last?" I answered, "Six months!" This was evidently considered impossible; for Mr. ——— observed, "We cannot make a roller serve six weeks!" If, however, the instructions here given are properly carried out, it will be found that hand-press rollers will keep good for at least the length of time I have mentioned, if the pressman has a variety, and is not compelled to use them for jobs for which they are not adapted.

I have already described the method of roller-cleaning which I consider best, under the headings Press and Machine; and although there are many methods advocated for preserving rollers, I will mention but one, which, without doubt, surpasses all others—that which I have seen adopted by London pressmen. When the roller is out of use it must be kept well smothered with common ink; and when again wanted, must simply be scraped. By this system, rollers will continue in good working

order at least double the time they would do if regularly washed. It is recommended by many to keep rollers in a current of air. My experience in such matters has taught me that they keep much longer good if kept away from currents of air—under stairs, or in cupboards.

RECASTING ROLLERS.

ROLLERS that need recasting should be thoroughly cleaned by washing. If, through long use, the surface has become hard, it must be removed by scraping, and the ends of the composition cut off. The composition may then be taken off the stocks, cut into pieces, and thrown into the pan. If it be doubtful whether the old compo. is good enough, it will be best to put a small quantity into the pan to try if it will melt properly; if it does not, soak the remainder for half-an-hour in water, and strain. If it is good it will now melt; if bad, it will not, and is only fit to be thrown away. After the old composition is melted, treacle must be added in the proportion of about a pound to six or eight pounds of composition. After boiling and stirring well for twenty minutes it should be poured into the mould. All surplus composition should be poured out of the pan; and when required for use it must be cut up by itself, new compo. or treacle being added as necessary.

WASHING FORMES.

AFTER a forme has been worked off, it must be washed immediately. The duty of doing so usually falls, in jobbing offices, on the person who has rolled for it, and in book offices upon the pressman. In some large offices, however, the "washing" is done by the house, a person being appointed by the firm for that purpose. But, be the duty whose it may, the work should be done thoroughly: not the least ink or dirt must be left upon any part of the forme, chase, or furniture. After the whole has been well brushed over with ley, it must be rinsed, by dashing water over it, or by turning upon it a jet of water by means of a hose and rose.

If any forme has been allowed to remain unwashed until the ink has dried, it will be found best, before attempting to wash it, to roll it over with a roller well covered with common ink, and allow it to stand for an hour with the ink on it, when the forme may be cleaned properly; or use a little paraffin when the ink cannot be removed by ordinary means.

Type must be kept clean or work will be disfigured.

STEREOTYPING.

STEREOTYPING is a process whereby a matrix of a type forme is made in either plaster or paper, and a cast in type-metal taken therefrom, which presents a true fac-simile of the face of the forme in every detail; and if properly done, the work produced by the cast when printed from cannot be distinguished from that printed by the type itself.

The process—especially the paper-machie, as it is sometimes called—is comparatively a recent invention; but it has been found of such an immense benefit to printers that it has gradually spread till it is now found in every department—in news-work, book-work, and jobbing. Although it is carried on in most large towns exclusively as a separate branch of the trade, supporting its own workmen, who follow that branch alone, it has been found so indispensable that most newspapers, with large circulations, have been compelled to introduce it with their web-feeder machines; all extensive book-houses also have their “foundry,” and even many jobbing offices, having joined issue, have their own “stereo-apparatus,” and do their own work.

The manipulations required in the process are simple; and under favourable circumstances it is not difficult to succeed in executing excellent work; but I am acquainted with several printers who have failed in their attempts to master the details of the art so far as to produce workable results, and who, in consequence, are led to believe that the business can only be successfully carried on even in a small way by those who have served an apprenticeship to it.

I believe those who have already tried and failed, and those who understand nothing whatever of the process, will find in the following remarks instructions that, if faithfully followed, will enable them to accomplish everything required in the art of stereotyping, and to work out all its details in a satisfactory manner, and produce good stereotypes of ordinary work without a failure.

It is not easy to enumerate the benefit stereotyping confers upon all those who adopt it, but the small jobbing printer who has his “apparatus” is enabled to execute orders which, under ordinary circumstances, he would have found it impossible to undertake. He finds that one machine with stereo can turn

out the work of at least two machines without stereo; and that his small founts of type are rendered by its aid nearly as efficient as large ones. In fact he finds his stereo-apparatus is both machines and type to him.

Stereotyping, as here portrayed, must not be understood as embracing the whole routine as practised by the Stereotyper proper, with his elaborate foundry, complete in all its details; but as practised by the printer, with his "stereo. apparatus," complete only as far as necessity compels; but still sufficiently so to meet the requirements of such as only occasionally need to bring it into use. However, the process as here described—so far as manufacturing flong, beating-in and making the matrix, drying, melting, casting, trimming, and other minor operations—will serve to illustrate the manipulations in use with the "foundry" as well as with the "apparatus."

I will, in the first place, describe my own appliances, so that I may be the better understood. They consist of a royal folio casting-box, which also serves the purposes of hot drying plate, and is supplied with gas-jets underneath for heating; melting pot, with atmospheric gas burner; imposing surface; shooting-bench and plane, for trimming the edges of the plates; beating, dusting, oiling, and pasting brushes; ladles, skimmer, chisels, punches, hammer, mallet, brads, &c., which, with flong, stereo-composition, and metal, makes the "foundry" complete and in working order, so far as the necessities of the small printer are concerned.

When intending to stereotype, in the first place lift out the melting-pot, light the atmospheric gas-burner from the top, and replace the pot; then light the jets underneath the casting-box, putting down the upper plate, as this will enable both the upper and lower plates to be heated at the same time, and so facilitate the drying of the matrix.

THE FLONG.

Now make your flong, which is done in the following manner: Paste a sheet of good, soft, thick blotting-paper evenly all over, lay a sheet of fine smooth tissue-paper on it, and pat in down thoroughly, or roll it with a desk roller; then thinly paste the tissue paper, being careful not to damage it in so doing, and add another sheet, patting it down or rolling it as before; turn over and paste the blotting, and cover it with another sheet of blotting paper. Stereo-paste—or as it is called, "composition"—must be used.

THE STEREO COMPOSITION.

The stereo paste should be made of three ounces of glue,

four ounces of Paris white, and eight ounces of flour. Melt the glue; mix the whiting till thoroughly smooth in water, and do the same with the flour, making both about the consistency of cream; then incorporate the mixtures of whiting and flour, and boil thoroughly; and lastly pour in the melted glue gradually, stirring well the whole time. Add a couple of table-spoonfulls of carbolic acid to prevent fermentation.

Nearly every stereotyper has his own method of making this paste, and each considers his the best. But the paste and flong described here are most excellent, and answer the purpose they are intended for admirably.

TO MAKE THE MATRIX.

Lay the forme (which must be "dressed" with type-high furniture) on the imposing surface, pour a little oil into the palm of the hand and lightly rub it over the surface of the oiling brush, and then brush over the face of the forme well, being particular to slightly oil the whole surface, or the flong will adhere to any part that may be missed, and spoil the matrix. Now dust a little French chalk over the tissue surface of the flong with a dusting-box, spreading it with the long-haired brush, and lay it tissue side down on the forme. Have a square piece of calico ready, which dip in clean water, squeeze well on taking it out, and place it evenly over the back of the flong. Take the long-handled beating brush and commence beating gently on the calico. This operation must be performed with great care to prevent beating the type through the tissue, for if this should be done it is probable when the metal is poured in it will penetrate underneath the tissue and spoil the matrix. Beat in (if the forme is small; say quarto demy) for about ten minutes, evenly over the whole surface, turning the forme round or walking round it, so that the whole may receive the same amount of beating, continuing until the impression of the type can be plainly seen on the back. Then raise a corner of the matrix—being careful not to lift it off the forme—and examine to see if it has become of sufficient depth; and examine other parts in the same manner. If any part appears too shallow beat over that portion until a sufficient depth is attained. During the whole of the beating-in operation bring the brush down squarely and flatly on the calico which covers the back of the flong. Having obtained sufficient depth, paste a sheet of wrapper-paper, place it on the flong, and beat it well into the matrix without using the calico; then, if the page contains any whites, cut pieces of thick card or old matrix about half the size of the whites, paste the pieces slightly, and put

them into the middle of each open space—this is done to prevent the metal when poured in forcing the matrix flat again, and thus allowing no more depth in the whites than other parts. Having packed all the open spaces properly, paste another sheet of wrapper-paper, place it over the whole, and pat it gently on with the hand or brush, and the matrix is ready for baking.

In using ready-made flong, first soak it in water. If made of hard, thick wrapper-paper it will take no harm by being left in the water for an hour or two; in fact I have made good matrices with some that had been in water all night. The softer descriptions can be used after passing two or three times through warm water or after being in cold water a quarter of an hour. The ready-made flong being prepared with tissue ready for use, simply requires the water blotting off it, after having been soaked, by laying a sheet of blotting on it and rubbing it over with the hand, and then dusting with French chalk; after which proceed exactly as already described. But as ready-made flong is sold by several makers, each make varying considerably in the softness of the material it is manufactured from, it will be found that experience will be needed in its use to ensure unvarying success; and that the various descriptions require somewhat different treatment.

DRYING AND BAKING THE MATRIX.

Lift the upper plate, or lid, of the casting-box, place the forme on the lower plate, being careful that the matrix or packing be not shifted, put a thick blanket over the matrix, lower the upper-plate, and screw it down moderately tight, the pressure being regulated to suit the size of the form—heavier for larger than for smaller formes. If too tightly squeezed, however, the type may be made low by the pressure, or the stereo-composition forced through the tissue, therefore due care must be exercised, to avoid damaging the type or matrix. Allow the forme to remain in the casting-press about ten minutes, to harden it a little; then unscrew and raise the plate, take off the blanket, and allow the matrix to dry for about the same time; then raise the matrix carefully off the face of the type, tap up the quoins, which the heat will have slackened, all round, and lift the forme. Now lay the matrix on the hot plate, placing stereo-furniture on the edges (clear of the face of the cast), and allow it to remain till dry—perhaps it may require about half-an-hour, unless the plate is very hot; after that trim the edges, and it will be ready to cast.

If the matrix should not be thoroughly dry before pouring

in the metal, although it may not be entirely ruined, it is probable the weight of the metal will cause the damp matrix to yield in the open parts, a plate cast from it, therefore, would be deficient in depth; it is important in consequence that the matrix be thoroughly "baked," it will then resist the weight of the molten metal and produce a cast of proper depth.

CASTING.

First paste a piece of brown paper at the edge—this must be an inch or so wider than the matrix, and long enough to allow one end to hang out of the top of the casting-box, when the matrix is in position—and well fasten it to one edge of the matrix; I usually fasten it to the imprint edge. Place the matrix in the centre of the casting-box, and the gauges in position, on the edges of each side and bottom of the matrix, cover the whole with a sheet of brown paper, also large enough to come a few inches beyond the mouth of the casting box, let down the upper plate carefully, so as not to move the gauges; screw up tightly, take out the pin—or release the catch, as the case may be—that secures the box in its horizontal position, and then tilt it up. With the skimmer remove all dross, &c., from the surface of the metal; then take sufficient metal in the ladle to cast the plate and allow a few inches to spare; test the heat by dipping a piece of paper into the metal, and if the heat turns it of a light-salmon or straw colour it is ready to pour. Pour in a quick, steady stream of metal, avoiding splashing; allow about one minute for the metal to "set," bring the casting-box to its horizontal position, raise the lid, lift off the plate, with matrix attached, place it on imposing-surface, matrix side uppermost; pat the back of the matrix (if it does not lift at once), and raise it with the greatest care if it adheres to any part of the plate. If metal be good, matrix dry, and these instructions properly followed, you will have a good workable plate, which now will only need dressing. Nick the plate along with a chisel, a pica or so from the imprint, and, taking it in the hand, give it a smart tap against the edge of the imposing-surface where it has been nicked, and the "tang" will break off.

Should it be found impossible to remove the matrix from the plate by ordinary means, put both into water; the matrix of course will be spoilt, but the plate may be good.

TRIMMING.

Trim the edges of the plate at the shooting-bench, holding it sufficiently slant to give the edges the required bevel, or if no bevel is needed it may be laid flat; and plane all sides close

up to the face of the cast. If any open part of the plate should appear to be too shallow—through careless making and “deepening” the matrix—hollow out the parts which may be liable to “black” with a chisel or gouge.

MOUNTING.

After trimming the plate properly at all edges, punch holes with the small-ended punch through it near the corners, choosing a hollow part for each punch-hole, or if there are no hollows of sufficient depth, counter-sink the punch-holes a little with a drill (which may be fastened in a chisel-handle), so that the heads of whatever are used to fasten the plates to the blocks shall stand well below the surface of the plate. If several casts are to be mounted, measure in the same manner as in book-work to find the proper space to be allowed between each page, and mark the mounting-block, by running a pencil along the edges of the plates, where each page must be fixed. Drive in brads, and strike them well into the plates with the broad ended punch, to prevent their blacking; and, if properly mounted, the stereotypes are ready for machine or press. When solid pages with borders are stereotyped it is often difficult to find an opening for a brad; when stereotypes of such pages are to be mounted always make a good bevel when trimming the plates, they can then be held on the mounting-boards by driving in common tin-tacks so that their heads may catch the bevels on every side. For mounting purposes there are several appliances, stereo-furniture with catches, stereo-beds, and other mechanical contrivances; but for the general jobbing-printer and for such as do only a limited quantity of book-work, the wood blocks are handiest and cheapest. Mahogany is preferable to any other wood that I am acquainted with, but common deal is extensively used, especially for mounting single pages; and up to crown or demy, if properly clamped, deal answers fairly well. When mounted on mahogany, brads or tacks will hold the plates well; but when using the softer wood, half-inch screws keep a firmer hold, and are consequently more to be relied upon.

STEREO-METAL.

I think it will not be out of place to say a few words about the metal used for stereotyping; as unsuitable metal is a fruitful source of failure. For some time before I published the “Compositor’s Guide” I had been practicing stereotyping, and had been successful to a very encouraging degree, always being able to obtain at least a passable plate. The metal I had then on hand, however, having been all used just at the time I wished to stereotype the “Compositor’s Guide,” I was obliged

to use up a large quantity of broken leads and other refuse that had been accumulating for years. That something was far from right with that metal I have no doubt; for I had failure after failure—some of the formes I took at least a dozen matrices of, and cast over twenty times, before obtaining a passable plate; and even after all the labour expended upon them, I found, on putting the plates to press, some of them ought to have been recast. Soon after finishing the stereotyping of the "Guide," I found myself compelled to send to a firm for a new supply of stereo-metal. The metal arrived in due course, and I found on using it all failures vanished—every cast was a perfect and sharp plate, and all successful. This I considered was attributable to the effect of good metal, and helped to prove the metal that had been immediately before in use was bad. Lately I have been troubled in the same manner, but in a lesser degree; I therefore wrote for professional stereotyper's opinion on the subject. I was ordered to "flux with grease and resin," and they had "no doubt I would find all right." I did what I was ordered to do, and found a cure for that description of metal at least. It was old type, in which had been melted about two pounds to tea-lead to five or six of type-metal.

When obliged to stereotype with an inferior description of metal I find I can obtain the best results by making a matrix of moderate depth—just deep enough to print properly—having casting-box, gauges, and matrix very hot, the metal about the usual temperature, and pouring in as quickly as possible. It is a great saving of time and temper, however, to send to some respectable firm and obtain proper metal for stereotyping.

CAUSES OF FAILURE.

Failure not unfrequently occurs even when the amateur stereotyper has taken—as he imagines—the utmost pains to ensure success. In some cases the failures have been so complete and persistent that the apparatus has been sold for what it would fetch, and an impression obtained that none but the professional stereotyper could accomplish respectable work. Bad metal is sometimes the cause of ill-success, but the most fruitful cause is not allowing the matrix to become thoroughly dry before attempting to cast. The casting-box being too cool is often the only impediment in the way of securing a good plate. The matrix may be beaten till some parts burst, which will allow the metal to penetrate beneath the tissue. Although this does not always spoil the cast, it often ruins the matrix. Metal too hot is another cause of failure. In stereotyping, bear in mind that the matrix must be dry, the casting-box, gauges, &c.,

hot, the metal of a moderate temperature; and, having a good matrix and good metal, if the foregoing instructions have been properly attended to success may confidently be expected.

REMARKS.

In casting a sheet or two of small pages—such as the “Compositor’s Guide”—it is advisable to cast them in sections of a sheet or half-sheet, eight pages in each, with the proper furniture between the pages. It saves a great deal of time, and the plates are much more easily mounted, and the pages are better to register than if cast singly.

When intending to cast a section of a forme containing a number of pages, an extra lead or two will be required in the furniture, to allow for the shrinking of the plates in cooling.

If the tissue surface of the matrix has been burst in beating-in, the matrix may be made serviceable by pasting slips of tissue over the broken parts, and smoothing it well down with the end of the finger, rubbing on French chalk at the same time.

If a matrix has been torn in lifting off a plate when cast, and more plates are required, the same remedy will often repair the mould sufficiently to allow of more casts being taken. If the tissue on any part has been raised, smooth it down before attempting to take another cast.

Before attempting to take a matrix from any very open job—such as table-work, &c.—cut up an old matrix, and lay pieces in the open spaces, to bear up the flong, and beat in very gently and with the greatest care over the open parts. The pieces of old matrix in the hollows must not stand too high, or the casts will have to be deepened to prevent blacking.

If any wood-cuts or wood lines are in a page which requires stereotyping, after making a matrix in the usual manner, place the forme and matrix in the casting-box, which must only be warm, and allow them to remain a few hours. After that the matrix may be very carefully lifted, dried slowly, with type-high furniture laid round it to keep it flat; after which apply the usual heat to expel all moisture.

If it is desired to take a cast from an old matrice, lay it on the hot plate for a short time before doing so, or it will probably be found to have gathered too much moisture to allow of a cast being taken.

When pouring metal into the casting-box, stand well to one side, away from the mouth. Should the matrix be damp the metal may fly.

On putting cold metal, or cold ladles into the molten metal, stand clear for the same reason.

HEBREW ALPHABET.

Character.	Name.	Power.	Numerical Value.
א	Aleph	<i>h</i> , unaspirated	1
ב	Beth	<i>v</i> , as in van ; (ב) <i>b</i> , as in band	2
ג	Gimel	<i>g</i> , hard ; (ג) <i>gh</i>	3
ד	Daleth	<i>d</i> , as in door	4
ה	He	<i>h</i> , soft ; (ה) <i>h</i> , aspirated	5
ו	Vau	<i>v</i> or <i>w</i>	6
ז	Zain	<i>z</i> , as in zeal	7
ח	Cheth	<i>kh</i> , aspirated	8
ט	Teth	<i>t</i> , as in torn	9
י	Iod	<i>y</i> , as in young	10
כ	Caph	<i>k</i> or <i>c</i> , hard	20
ל	Lamed	<i>l</i> , as in law	30
מ	Mem	<i>m</i> , as in manner	40
נ	Nun	<i>n</i> , as in nothing	50
ס	Samech	<i>s</i> , as in sir	60
ע	Oin	<i>ng</i>	70
פ	Pe	<i>ph</i> , as in Philip ; (פ) <i>p</i> , as in pint	80
צ	Tzadde	<i>tz</i> , as in hawitzer	90
ק	Koph	<i>k</i> , as in lock	100
ר	Resh	<i>r</i> , as in road	200
ש	Shin	<i>sh</i> , as in shine	} 300
ש	Sin	<i>s</i> , as in sin	
ת	Tau	<i>th</i> , as in thin ; (ת) <i>t</i> , as in tin	400

BROAD LETTERS.

As Hebrew words are never divided, the following letters are cast broad to facilitate justification :—

ז	ה	ח	ל	ם	ת
<i>Aleph.</i>	<i>He.</i>	<i>Cheth.</i>	<i>Lamed.</i>	<i>Mem.</i>	<i>Tau.</i>

GREEK ALPHABET.

Characters.		Name.	Power.	Numerals.
A	α	Alpha	<i>a</i>	1
B	β 6	Beta	<i>b</i>	2
Γ	γ	Gamma	<i>g</i>	3
Δ	δ	Delta	<i>d</i>	4
E	ϵ	Epsilon	<i>e</i> short	5
Z	ζ	Zeta	<i>z</i>	7
H	η	Eta	<i>e</i> long	8
Θ	θ 9	Theta	<i>th</i>	9
I	ι	Iota	<i>i</i>	10
K	κ	Kappa	<i>k</i> or <i>c</i>	20
Λ	λ	Lambda	<i>l</i>	30
M	μ	Mu	<i>m</i>	40
N	ν	Nu	<i>n</i>	50
Ξ	ξ	Xi	<i>x</i>	60
O	\omicron	Omicron	<i>o</i> short	70
Π	π	Pi	<i>p</i>	80
Ρ	ρ 9	Rho	<i>r</i>	100
Σ	σ s	Sigma	<i>s</i>	200
T	τ	Tau	<i>t</i>	300
Υ	υ	Upsilon	<i>u</i>	400
Φ	ϕ	Phi	<i>ph</i>	500
Χ	χ	Chi	<i>ch</i>	600
Ψ	ψ	Psi	<i>ps</i>	700
Ω	ω	Omega	<i>o</i> long	800

ASPIRATES AND ACCENTS.

Lenis	-	-	'	Asper grave	-	•
Asper	-	-	'	Circumflex	-	ˆ
Acute	-	-	'	Circumflex lenis	-	˘
Grave	-	-	`	Circumflex asper	-	ˆ˘
Lenis acute	-	-	˘	Diæresis	-	¨
Lenis grave	-	-	˘	Diæresis acute	-	˘˘
Asper acute	-	-	˘˘	Diæresis grave	-	˘˘˘

POINTS.

The comma, the period, and the exclamation in Greek are the same as in English; but the interrogation (;) is our semi-colon; and the colon is a point at the head of a letter; as, (˘)—nothing more than an inverted period.

α	ϵ	η	θ	υ	ω	Thin Spaces.	σ	π	η	ψ	δ	δ
β	ϵ	γ	δ				ι	π	η	ξ	ϕ	χ
κ		λ	μ			Thick Spaces.	\omicron	π		ρ		Em- quadrats.
										σ		En- quadrats.
ξ	ζ	ν	τ				α	ω		$\dot{\iota}$		Quadrats.

GREEK LOWER CASE.

TECHNICAL TERMS.

- Author's proof.**—The clean proof sent to an author after the compositors' errors have been corrected.
- Bank.**—A table to lay sheets on at press.
- Bastard title.**—A short title preceding the general title of a work.
- Bastard type.**—Type with a face larger or smaller than its appropriate body: as nonpareil on minion body, or minion on nonpareil body.
- Batter.**—Types accidentally injured in a forme.
- Beard of a letter.**—The outer angle supporting the face of a type and extending to the shoulder.
- Bearer.**—A strip of reglet to bear off the impression from a blank page. A long piece of furniture, type-high, used in working jobs. A solid-faced type interspersed over the blank parts of a page in composing for stereotyping, to resist the force of the knife when the plates are shaved.
- Bearer-lines.**—The top line and bottom line in a page prepared for stereotyping.
- Bevels.**—Clumps cast nearly type-high, with a bevelled edge, used by stereotypers to form the flange on the side of the plates.
- Bite.**—An irregular white on the edge or corner of a printed page, caused by the frisket not being sufficiently cut out.
- Blank page.**—A page on which no matter appears.
- Blocks.**—The mahogany frames on which stereotype plates are affixed for printing.
- Body.**—The shank of the letter.
- Botch.**—A bungling, incompetent man.
- Bottle-arsed.**—Type wider at the bottom than at the top.
- Boxes.**—The compartments of a case in which the types are placed.
- Break.**—The last line of any paragraph.
- Broadside.**—A forme of one page, printed on one side of a whole sheet of paper.
- Cassie paper.**—Damaged paper—the outside quires of a ream.
- Casting off.**—Estimating how many pages a certain quantity of copy will make in type.
- Chapel.**—The meetings held by the workmen for the purpose of redressing grievances, collecting fines, and disposing of their funds.
- Clean proof.**—When a proof has but few faults in it, it is called a clean proof; and when a proof is to be sent to the author the pressmen are ordered to pull a clean proof.
- Clearing away.**—Properly disposing of materials after a work has been completed.
- Close matter.**—Solid matter with few break-lines.
- Coffin.**—The carriage of a machine.
- Companionship.**—All the hands on a work.
- Composing.**—Setting type.
- Correct.**—When the corrector reads the proof, or the compositor mends the faults marked in the proof, they are both said to correct; the corrector the proof, the compositor the forme.
- Corrections.**—The alterations or errors marked in a proof.

Cut-in letter.—A type of large size adjusted at the beginning of a line at the commencement of chapters.

Cut-in note.—A note justified into the side of a page.

Distributing.—Returning type to their various boxes after having been printed from. Spreading ink evenly over the surface of a roller.

Double.—Among compositors, a repetition of words: among pressmen, a sheet that is twice pulled and mackled.

Devil.—The errand-boy of a printing-office.

Draw.—When a forme is working at press, and any of the letters are loosely justified, or from any other cause are not tight in the forme, and the adhesion of the ink or rollers pulls them out, they are said to draw.

Dropping out.—After a forme is locked up, and, when it is being lifted from or being laid upon the imposing table, or the press, if any letters, spaces, or quadrats fall out, it is said something drops out, or something has dropped out.

Dressing a chase or forme.—Fitting the pages and chase with furniture and quoins.

Drive out.—To space widely.

Even lines.—When a piece of printing has to be executed in great haste, a number of compositors are employed on it, and the copy is cut into small pieces for each, to facilitate the making-up, imposing, and the general furthering of the work; if the copy should be in long paragraphs, the compositors have each to begin a line and to make their copy end a line, frequently with great irregularity of spacing. This is termed making even. In newspapers it is of constant occurrence.

Fat.—Poetry and leaded matter.

Fat face, or Fat letter.—Broad-stemmed letter.

Father.—The head or president of the chapel.

Fly.—The person that takes off the sheets from the press or machine.

Folio.—The figure or figures which stand at the head of the page; also, a sheet of paper once doubled.

Forme.—The pages when imposed in a chase.

Foul proof.—A proof with many faults marked in it.

Fount.—An assortment of type in definite proportions.

Friar.—A light patch in a printed sheet, caused by defective rolling.

Fudge.—To contrive without proper materials.

Full press.—When two men work at the press together.

Furniture.—Strips of wood or metal placed around and between pages when imposed.

Gauge.—A strip of reglet with a notch in it, passed with the making-up, to denote the length of the pages.

Get in.—To set close.

Grassing.—A compositor taking occasional work.

Gutter-sticks.—Furniture used in imposition to separate the pages.

Half press.—When but one person works at the press.

Half-title.—The title of a book inserted in the upper portion of the first page of matter.

Hell receptacle.—The receptacle for broken or battered letters; the old metal box; the shoe.

Headline.—The top line of a page containing the running title and folio. When there is no running title the folio is styled the headline. Chapter lines are headlines, as are also the titles of articles in periodicals and newspapers.

High line.—Term applied to a type that ranges above the rest in a line.

High (or low) to paper.—Applied to a type cast higher or lower than the rest of the fount.

Horse.—The stage on the bank on which pressmen set the heap of paper.

Horsing.—Charging for work before it is executed.

Imposing.—Arranging and locking up a forme of type in a chase.

Imprint.—The name of the printer or of the publisher appended to jobs or title-pages.

Inferior letters.—Small letters cast near the bottom of the type.

- Inset*.—Same as offset.
- Jeff*.—To throw for a choice with quadrats instead of dice.
- Justifying*.—Spacing out lines accurately.
- Keep in*.—To crowd in by thin spacing.
- Keep out*.—To drive out or expand matter by wide spacing.
- Kerned letter*.—Type of which a part of the face hangs over the body.
- Laying cases*.—Filling cases with a fount of new type.
- Laying pages*.—Placing pages on the stone in a proper order for imposition.
- Lean*.—Close and solid matter.
- Lean face*.—Light, thin type.
- Letter hangs*.—When the page is out of square.
- Locking up*.—Tightening up a forme by means of quoins.
- Longcross*.—The bar that divides a chase the longest way.
- Long pull*.—When the bar is brought close to the cheek of the press.
- Low case*.—When the compositor has set almost all the letters out of his case.
- Low line*.—Applied to a line of type that ranges lower than the rest in the forme.
- Making-up*.—To arrange the lines of matter into pages.
- Making margin*.—In imposition, arranging the space between the pages of a forme so that the margin will be properly proportioned.
- Making ready*.—Preparing a forme on the press for printing.
- Measure*.—The width of a page.
- Monk*.—A black spot in a printed sheet, owing to the ink not being properly distributed.
- Naked forme*.—A forme without furniture.
- Off*.—Signifies that the pressman has worked off the forme.
- Offcut*.—A portion of a sheet that is cut off before folding.
- Open matter*.—Matter widely leaded or containing numerous break-lines.
- Off its feet*.—When matter does not stand upright.
- Out*.—An omission marked in a proof by the reader
- Out of register*.—When the pages do not back each other.
- Overlay*.—A scrap of paper pasted on the tympan-sheet to bring up the impression.
- Overrunning*.—Carrying words backward or forward in correcting.
- Passing the making-up*.—Passing to the next hand in order the lines remaining (if any) after a compositor has made up his matter, together with the gauge and proper folio.
- Perfecting*.—Printing the second forme of a sheet.
- Pie*.—Type promiscuously intermingled.
- Pick*.—A particle of ink or paper imbedded in the hollow of a letter, filling up its face and occasioning a spot.
- Pigs*.—An ancient nickname given in derision by compositors to pressmen. The press-room was called a pig-sty.
- Planing down*.—To bring down types evenly on their feet, by laying a planer on the page and striking it firmly with a mallet.
- Point-holes*.—Fine holes made by the points to register the second impression by.
- Press proof*.—The last proof read and corrected previous to working-off.
- Ratting*.—Working at less than the established prices.
- Register sheet*.—The sheet used to make register.
- Register*.—To cause the pages in a sheet to print precisely back to back.
- Revise*.—The last proof of a forme before working it off.
- Riding*.—Type at the end of a line catching against a lead, or the ends of leads overlapping each other.
- Rounce*.—The handle for running in and out the carriage of a hand-press.
- Runs on sorts*.—Requiring an inordinate proportion of particular letters.
- Set off*.—When sheets that are newly worked off soils those that come in contact with them, they are said to set off.

Set-off sheet.—A sheet of paper pasted on the tympan sheet, when perfecting, to prevent the second side being soiled by the set off.

Sheeting—Taking ink off rollers by rolling them on clean sheets of paper.

Shank.—The square metal upon which the face of a letter stands.

Signature.—A letter or a figure used at the bottom of the first page of a sheet, to direct the binder in placing the sheets in a volume.

Slur.—A blurred impression in a printed sheet.

Sorts.—The letters in the several case-boxes are separately called sorts, in printers' and founders' language.

Squabble.—A page or forme is squabbled when the letters are twisted out of a square position.

Shoulder.—The upper surface of the shank of a type not covered by the letter.

Stand.—The frame on which the cases are placed.

Stet.—Written opposite to a word, to signify that the word erroneously struck out in a proof shall remain.

Stem.—The straight flat strokes of a straight letter.

Sub.—A compositor occasionally employed on a daily paper, to fill the place of an absentee.

Superior letters.—Letters of a small face, cast by the founder near the top of the type.

Table-work.—Matter consisting partly of rules and figures.

Take, or Taking.—A given portion of copy.

Token—Two hundred and fifty sheets.

Turn for a letter.—When a sort runs short, a letter of the same thickness is substituted, placed bottom upward.

Underlay.—A piece of paper or card placed under types or cuts to improve the impression.

Wayz-goose.—A term given to the annual dinner customary among printers during the summer months.

White line.—A line of quadrats.

Whip.—A quick compositor— one who can set his "galley" (5000 letters) in two hours.

White page—A blank page.

White paper.—Until the second side of a sheet is printed, pressmen call the heap white paper.

Working in pocket.—When the hands share equally their earnings on a work.



COMPOSITORS' WAGES IN LONDON.

ADVANCES FROM 1785.

PREVIOUS to the year 1785, wages in the printing business appear to have been paid as in most other trades, at a stated weekly sum, piece-work not having been introduced.

No regular scale of prices for composition was printed until 1785, the following list of advances in compositors' wages, therefore, is commenced from that date.

Nov. 20, 1785, piece-work prices were advanced from fourpence to fourpence-halfpenny per thousand ens, including english and brevier. In leaded matter the em or en at the beginning and end of the line was not to count in the width.*

Feb. 14, 1793, the compositors claimed, (1) "That all works be cast up with the heads and directions inclusive;" and (2) "That em and en quadrats, or whatever is used at the ends of lines, be included in the width;" which was granted. The advance to commence at Lady-day, but not to extend to works that had commenced but were not finished before that time.

Dec. 18, 1795, at a meeting of master printers, held at the Globe Tavern, to consider certain propositions submitted to them by the compositors, it was resolved, "That all works printed in larger type than english shall be cast up wholly as english."

Dec. 24, 1800, the master printers met to consider a demand from the compositors for an additional halfpenny per thousand on manuscript. The advance was not conceded, the meeting being of opinion, "That to make any distinction between manuscript and reprint would be an unjustifiable departure from the established and long-approved principles by which work has been regulated." Taking into consideration, however, the pressure of the times (bread alone being 1s. 7½d. per quartern), a farthing extra per thousand was granted without distinction on both reprint and manuscript. To come into operation January 1, 1801.

At a meeting held on Feb. 19, 1805, and at two subsequent adjourned meetings, at the York Hotel, New Bridge Street, on the 20th and 26th of the same month, consisting of eight master printers and eight compositors, a Scale of Prices for compositors' work was agreed to, similar in almost every detail to the acknowledged Scale of Prices that is in force at the present time. And it was also decided that "Any disputes that may arise in future, we agree to refer to the decision of the Committee of Masters."

* It appears to have been the practice, in all leaded matter, to indent an em or en at the beginning and end of the line, to prevent commas or other thin types from slipping.

Notes constituting the charge of One Shilling per Sheet.

4to and 8vo.—20 lines or 2 notes and not exceeding 4 pages in every 10 sheets.

12mo—1 page or 2 notes and not exceeding 10 pages in every 10 sheets.

18mo or above.—2 pages or 2 notes and not exceeding 8 pages in every 10 sheets.

Pamphlets.—10 lines or 2 notes and not exceeding 2 pages in 5 sheets.

Reprints with MS. insertions add $\frac{1}{4}$ d. to the price stated on the 169th page.

Stereotyped matter with high spaces adds $\frac{1}{4}$ d. to the price stated.

Stereotyped matter with low spaces adds $\frac{1}{2}$ d. to the price stated.

NUMERALS.

Numbers expressed by letters; either roman or italic caps or lower case are used, thus—Vol. I. chap. xvii. The numerals are:

I	i	.....	1	C	c	.....	100
V	v	.....	5	D	d	.....	500
X	x	.....	10	M	m	.....	1000
L	l	.....	50				

The manner of expressing numbers by numerals is by either taking from a higher or adding to a lower numeral, thus—

IV	iv	.....	4	LX	lx	.....	60
VI	vi	.....	6	XC	xc	.....	90
IX	ix	.....	9	CX	cx	.....	110
XI	xi	.....	11	CD	cd	.....	400
XIV	xiv	.....	14	DC	dc	.....	600
XVI	xvi	.....	16	CM	cm	.....	900
XX	xx	.....	20	MC	mc	.....	1100
XL	xl	.....	40	MD	md	.....	1500

PROVINCIAL RATES OF WAGES.

Established Wages (Jobbing), Piece Work Prices, and Number of Hours Worked.

	'stab.	piece.	hrs.		'stab.	piece.	hrs.
Aylesbury	26s.	...	58	Kendal	25	5½	58
Ayr.....	24	...	54	Lancaster	26	5½	56
Banbury.....	24/6	6	55	Leeds	32	6¼	54
Barnsley	28	6	56	Leicester	28	6	56
Bath ...	27	6½	54	Lewes.....	29	6¼	60
Birmingham	30	7½	54	Londonderry.....	27	5½	59
Blackburn	28	6	54	Liverpool	34	8½	54
Bolton.....	31/6	6½	55½	Manchester	35	7½	55
Bradford	30	6¼	55	Macclesfield	28	6	58
Bristol	28	6½	54	Middlesbrough ...	28	6½	54
Brighton	29	...	60	Merthyr.....	23	...	57
Burnley.....	26	6	54	Newcastle	32	6½	54
Cambridge(Town)	27	5	...	Newport.....	24	6	58
Cambridge(Univ.)	36	...	...	Northampton ...	29	6½	54
Cardiff	27	6½	54	Norwich.....	26	5½	54
Carlisle	24	5	54	Nottingham	27	...	54
Carmarthen	25	5½	54	Oldham	32	6½	54
Cheltenham	26	...	56	Oswestry	27/6	5¼	54
Chester	28/6	6½	54	Oxford (Town)...	36	6	55
Chesterfield ..	26	6	56	Oxford (Univ.)...	36	...	...
Clonmel	20	...	60	Penrith	25	...	56
Coleford.....	25	...	56	Potteries	28	7	54
Darlington.....	30	6	53	Preston	30	6½	54
Derby.....	28	6½	54	Reading	24	6	59
Devizes	24	...	57	Rochdale	30	6	54
Dewsbury	26	...	56	Rugby.....	25	...	59
Doncaster	26	5½	57	Salisbury	30	6	56
Dublin	33	6½	57	Scarborough	28	...	54
Dumbarton	27	...	51	Sheffield.....	31	6¼	54
Drogheda	24	...	60	Shrewsbury	26	...	56
Durham.....	26	5½	54	Stafford	32	5½	54
Edinburgh.....	30	...	54	Stocktn..	26	...	54
Exeter	20	...	60	Sunderland	32	6½	54
Glasgow.....	30	...	54	Ulverston	24	6	59
Greenock	30	5½	54	Warrington	25	...	59
Guildford	30	6½	54	Warwick & Leamg.	25	6½	54
Halifax	30	6½	54	Whitehaven	25	5	57
Hartlepool.....	26	6	54	Wigan	29	6	55
Hereford	24	6	56	Wolverhampton..	27	6½	54
Hertford	28	...	58	Worcester	27	...	55
Huddersfield	30	6¼	54	Wrexham	26	5½	54
Hull	28	5½	53½	York	28	5½	54

QUANTITY OF PAPER TO GIVE OUT FOR ANY JOB FROM 50 TO 10,000.

NUMBER REQUIRED.	FOLIO.		3 TO.		4 TO.		6 TO.		8 VO.		9 MO.		12 MO.		15 MO.		16 MO.		18 MO.		20 MO.		24 MO.		32 MO.		36 MO.		48 MO.	
	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.	qrs.	sh.
50	1	1	0	17	0	13	0	9	0	7	0	6	0	5	0	4	0	4	0	3	0	3	0	3	0	2	0	2	0	2
100	2	2	1	10	1	1	0	17	0	13	0	12	0	9	0	7	0	7	0	6	0	5	0	5	0	4	0	3	0	3
200	4	4	2	19	2	2	1	10	1	1	0	23	0	17	0	14	0	13	0	12	0	10	0	9	0	9	0	7	0	6
250	5	5	3	12	2	15	1	18	1	8	1	4	0	21	0	17	0	16	0	14	0	13	0	11	0	8	0	7	0	6
300	6	6	4	4	3	3	2	2	1	14	1	10	1	1	0	20	0	19	0	17	0	15	0	13	0	10	0	9	0	7
400	8	8	5	14	4	4	2	19	2	2	1	21	1	10	1	3	1	1	0	23	1	20	0	17	0	13	0	12	0	9
500	10	10	6	23	5	5	3	12	2	15	2	8	1	18	1	10	1	1	8	1	4	1	1	0	21	0	16	0	14	0
600	12	12	8	8	6	6	4	4	3	3	2	19	2	2	1	16	1	14	1	10	1	6	1	1	0	19	0	17	0	13
700	14	14	9	18	7	7	4	21	3	16	3	6	2	11	1	23	1	20	1	15	1	11	1	6	1	0	22	0	20	0
750	15	15	10	10	7	20	5	5	3	22	3	12	2	15	2	3	1	23	1	18	1	14	1	8	1	0	21	0	21	0
800	16	16	11	3	8	8	5	14	4	4	3	17	2	19	2	6	2	2	2	2	1	16	1	10	1	1	0	23	0	17
900	18	18	12	12	9	9	6	6	4	17	4	4	3	3	2	12	2	9	2	2	1	21	1	14	1	5	1	1	0	19
1000	20	20	13	22	10	10	6	23	5	5	4	16	3	12	2	19	2	15	2	8	2	2	1	18	1	8	1	4	0	21
1250	26	1	17	9	13	1	8	17	6	13	5	19	4	9	3	12	3	7	2	22	3	22	2	15	1	16	1	11	1	3
1500	31	6	20	20	15	15	10	10	7	20	6	23	5	5	4	5	3	22	3	12	3	3	2	15	1	23	1	18	1	8
1750	36	11	24	8	18	6	12	4	9	3	8	3	6	2	4	22	4	14	4	2	3	16	3	1	2	8	2	1	1	13
2000	41	16	27	19	20	20	13	22	10	10	9	7	6	23	5	14	5	5	4	16	4	4	3	12	2	15	2	8	1	18
2500	52	2	34	18	26	1	17	10	13	1	11	15	8	17	7	0	6	13	5	20	5	5	4	9	3	7	2	22	2	5
3000	62	12	41	16	31	6	20	20	15	15	13	22	10	10	8	8	7	20	6	23	6	6	5	5	3	22	3	12	2	15
4000	83	8	55	14	41	16	27	19	20	20	18	13	13	22	11	3	10	10	9	7	8	8	6	23	5	5	4	16	3	12
5000	104	4	69	11	52	2	34	18	26	1	23	4	17	9	13	22	13	11	11	14	10	10	8	17	6	13	5	19	4	9
10000	208	8	138	22	104	4	69	11	52	2	46	8	34	18	27	19	26	1	23	4	20	20	17	9	13	1	11	14	8	17

TABLE TO CALCULATE THE COST OF PAPER.

Ream.						Half ream.						Five quires.						One quire.						Half quire.						Six sheets.					
s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.				
2	61	3	0	7 $\frac{1}{2}$	1 $\frac{1}{2}$	0 $\frac{3}{4}$	...	12	11	6	5 $\frac{1}{2}$	3	2 $\frac{3}{4}$	7 $\frac{1}{2}$	...	...	13	4	6	8	3	4	8	4	2	...	...	...	...	...	...
4	02	0	1	0	2 $\frac{3}{4}$	1 $\frac{1}{4}$	...	13	4	6	8	3	4	8	4	2	...	13	9	6	10 $\frac{1}{2}$	3	5 $\frac{1}{4}$	8 $\frac{1}{4}$	...	...	...	...	...	...	...
4	62	3	1	1 $\frac{1}{2}$	2 $\frac{3}{4}$	...	...	13	9	6	10 $\frac{1}{2}$	3	5 $\frac{1}{4}$	8 $\frac{1}{4}$	...	...	14	2	7	1	3	6 $\frac{1}{2}$	3	7 $\frac{3}{4}$	8 $\frac{3}{4}$	4 $\frac{1}{4}$	...	...	...	...	...
5	02	6	1	3	3	1 $\frac{1}{2}$	0 $\frac{3}{4}$	14	2	7	1	3	6 $\frac{1}{2}$	3	7 $\frac{3}{4}$	8 $\frac{3}{4}$	...	14	7	7	3 $\frac{1}{2}$	3	7 $\frac{3}{4}$	8 $\frac{3}{4}$	...	...	...	...	...	...
5	102	11	1	5 $\frac{1}{2}$	3 $\frac{3}{4}$	1 $\frac{1}{4}$	...	14	7	7	3 $\frac{1}{2}$	3	7 $\frac{3}{4}$	8 $\frac{3}{4}$	...	...	15	0	7	6	3	9	9	4 $\frac{1}{2}$	2 $\frac{1}{4}$	...	...	...	...	...	...
6	33	1 $\frac{1}{2}$	1	6 $\frac{3}{4}$	3 $\frac{3}{4}$	2	1	15	0	7	6	3	9	9	4 $\frac{1}{2}$	2 $\frac{1}{4}$	...	15	5	7	8 $\frac{1}{2}$	3	10 $\frac{1}{2}$	9 $\frac{1}{4}$	...	...	...	...	...	...
6	83	4	1	8	4	2	1	15	5	7	8 $\frac{1}{2}$	3	10 $\frac{1}{2}$	9 $\frac{1}{4}$	...	...	15	5	7	8 $\frac{1}{2}$	3	10 $\frac{1}{2}$	9 $\frac{1}{4}$	...	...	...	...	...	...	...
7	13	6 $\frac{1}{2}$	1	9 $\frac{1}{4}$	4 $\frac{1}{4}$	...	...	15	10	7	11	3	11 $\frac{1}{2}$	9 $\frac{3}{4}$	4 $\frac{3}{4}$	...	...	15	10	7	11	3	11 $\frac{1}{2}$	9 $\frac{3}{4}$	4 $\frac{3}{4}$	...	...	...	...	...	...
7	63	9	1	10 $\frac{3}{4}$	4 $\frac{3}{4}$	2 $\frac{1}{4}$	...	16	3	8	1 $\frac{1}{2}$	4	0 $\frac{3}{4}$	9 $\frac{3}{4}$	...	...	16	3	8	1 $\frac{1}{2}$	4	0 $\frac{3}{4}$	9 $\frac{3}{4}$	...	...	...	...	...	...	...	...
7	113	11 $\frac{1}{2}$	1	11 $\frac{3}{4}$	4 $\frac{1}{4}$	...	...	16	8	8	4	4	2	10	5	2 $\frac{1}{2}$	...	16	8	8	4	4	2	10	5	2 $\frac{1}{2}$	...	...	...	...	...
8	44	2	2	1	5	2 $\frac{1}{2}$	1 $\frac{1}{4}$	17	1	8	6 $\frac{1}{2}$	4	3 $\frac{1}{4}$	10 $\frac{1}{4}$	...	...	17	1	8	6 $\frac{1}{2}$	4	3 $\frac{1}{4}$	10 $\frac{1}{4}$	...	...	...	...	...	...	...	...
8	94	4 $\frac{1}{2}$	2	2 $\frac{1}{4}$	5 $\frac{1}{4}$	...	...	17	6	8	9	4	4 $\frac{1}{2}$	10 $\frac{3}{4}$	5 $\frac{1}{4}$	...	17	6	8	9	4	4 $\frac{1}{2}$	10 $\frac{3}{4}$	5 $\frac{1}{4}$	...	...	...	...	...	...	...
9	24	7	2	3 $\frac{3}{4}$	5 $\frac{3}{4}$	2 $\frac{3}{4}$	...	17	11	8	11 $\frac{1}{2}$	4	5 $\frac{1}{4}$	10 $\frac{3}{4}$	...	...	17	11	8	11 $\frac{1}{2}$	4	5 $\frac{1}{4}$	10 $\frac{3}{4}$	...	...	...	...	...	...	...	...
9	74	9 $\frac{1}{2}$	2	4 $\frac{3}{4}$	5 $\frac{3}{4}$	18	4	9	2	4	7	11	5 $\frac{1}{2}$	2 $\frac{3}{4}$...	18	4	9	2	4	7	11	5 $\frac{1}{2}$	2 $\frac{3}{4}$			
10	05	0	2	6	6	3	1 $\frac{1}{2}$	18	9	9	4 $\frac{1}{2}$	4	8 $\frac{1}{4}$	11 $\frac{1}{4}$	...	...	18	9	9	4 $\frac{1}{2}$	4	8 $\frac{1}{4}$	11 $\frac{1}{4}$	...	...	...	...	...	...	...	...
10	55	2 $\frac{1}{2}$	2	7 $\frac{1}{4}$	6 $\frac{1}{4}$	19	2	9	7	4	9 $\frac{1}{2}$	11 $\frac{3}{4}$	5 $\frac{3}{4}$	19	2	9	7	4	9 $\frac{1}{2}$	11 $\frac{3}{4}$	5 $\frac{3}{4}$			
10	105	5	2	8 $\frac{3}{4}$	6 $\frac{3}{4}$	3 $\frac{1}{4}$	...	19	7	9	9 $\frac{1}{2}$	4	10 $\frac{3}{4}$	11 $\frac{3}{4}$	...	...	19	7	9	9 $\frac{1}{2}$	4	10 $\frac{3}{4}$	11 $\frac{3}{4}$	...	...	...	...	...	...	...	...
11	35	7 $\frac{1}{2}$	2	9 $\frac{3}{4}$	6 $\frac{3}{4}$	20	0	10	0	5	0	12	6	3	...	20	0	10	0	5	0	12	6	3			
11	85	10	2	11	7	3 $\frac{1}{2}$	1 $\frac{3}{4}$	21	8	10	10	5	5	13	6 $\frac{1}{2}$	3 $\frac{1}{4}$...	21	8	10	10	5	5	13	6 $\frac{1}{2}$	3 $\frac{1}{4}$			
12	16	0 $\frac{1}{2}$	3	0 $\frac{1}{4}$	7 $\frac{1}{4}$	30	0	15	0	7	6	18	9	4 $\frac{1}{2}$...	30	0	15	0	7	6	18	9	4 $\frac{1}{2}$			
12	66	3	3	1 $\frac{1}{2}$	7 $\frac{1}{2}$	3 $\frac{3}{4}$...	33	4	16	8	8	4	20	10	5	...	33	4	16	8	8	4	20	10	5			

RELATIVE SIZES OF TYPE.

Dble. Pica = 2-line Small Pica.	Small Pica = 2-line Ruby.
Paragon = „ L. Primer.	L. Primer = „ Pearl.
Gt. Primer = „ Bourgeois.	Bourgeois = „ Diamond.
English = „ Minion.	Brevier = „ Minikin.
Pica = „ Nonpareil.	

4 $\frac{1}{2}$ ems of Gt. Primer = 1 inch.	8 $\frac{2}{3}$ ems of L. Primer = 1 inch.
5 $\frac{1}{2}$ „ English = „	9 $\frac{1}{2}$ „ Brevier = „
6 „ Pica = „	12 „ Nonpareil = „
7 „ Small Pica = „	17 $\frac{1}{3}$ „ Diamond = „

LEADS REQUIRED TO JUSTIFY A LINE OF ANY GIVEN BODY OF TYPE.

Pearl	One four and one eight-to-pica.
Ruby	One four and one six-to-pica.
Nonpareil	Two fours; three sixes; or four eights.
Emerald	One four, one six, and one eight.
Minion	One four and two sixes.
Brevier	Two fours and one six.
Bourgeois	Three eights and two sixes.
Long Primer	Three fours; or six eights.
Small Pica	Two fours and two sixes.
Pica	Four fours; or six sixes.
English	Three fours and two sixes.

This Table shows what number of ems of any other fount will correspond in depth of body with any given number of Pica ems, from 10 ems Pica to 30.

Pica.	Small Pica	Long Primr.	Bourg	Brev.	Min.	Nonp.	Ruby.	Pearl.	Pica.
10	11½	12½	14	15½	17	20	23	25	10
11	12½	14	15½	17	18½	22	25½	28	11
12	14	15	17	18½	20½	24	27½	30	12
13	15	16½	18½	20	22	26	30	33	13
14	16	17½	20	21½	23½	28	32½	35	14
15	17½	19	21½	23	25½	30	34½	38	15
16	18½	20	23	25	27	32	37	40	16
17	19½	21½	24	26½	28½	34	39½	43	17
18	21	22½	25½	28	30½	36	41½	45	18
19	22	24	27	29½	32	38	44	48	19
20	23	25	28½	31	34	40	46	50	20
21	24	26½	30	32½	35½	42	48½	53	21
22	25½	27½	31½	34	37	44	51	55	22
23	26½	29	32½	35½	39	46	53	58	23
24	27½	30	34	37	40½	48	55½	60	24
25	29	31½	35½	38½	42	50	58	63	25
26	30	32½	37	40	44	52	60	65	26
27	31	34	38½	42	45½	54	62½	68	27
28	32½	35	40	43½	47½	56	65	70	28
29	33½	36½	41	45	49	58	67	73	29
30	34½	38	42½	46½	50½	60	69½	75	30

SIZES OF PAPER.

The following Table gives the dimensions in inches of the various sizes of paper, and the different divisions into which the respective sheets may be cut:—

DOUBLE SUPER ROYAL.			
Broadside	...	40	by 27 $\frac{1}{2}$
Long Folio	...	40	" 13 $\frac{3}{4}$

DOUBLE ROYAL.			
Broadside	...	40	by 25
Long Folio	...	40	" 12 $\frac{1}{2}$

DOUBLE DEMY.			
Broadside	...	35 $\frac{1}{2}$	by 22 $\frac{3}{4}$
Long Folio	...	35 $\frac{1}{2}$	" 11 $\frac{1}{4}$

DOUBLE LARGE POST.			
Broadside	...	33	by 21
Long Folio	...	33	" 10 $\frac{1}{2}$

DOUBLE CROWN.			
Broadside	...	30	by 20
Long Folio	...	30	" 10

DOUBLE POST.			
Broadside	...	31	by 19
Long Folio	...	31	" 9 $\frac{1}{2}$

DOUBLE FOOLSCAP.			
Broadside	...	27	by 17
Long Folio	...	27	" 8 $\frac{1}{2}$

IMPERIAL.			
Broadside	...	30	by 22 $\frac{1}{2}$
Long Folio	...	30	" 11 $\frac{1}{4}$

SUPER ROYAL.			
Broadside	...	27 $\frac{1}{2}$	by 20
Long Folio	...	27 $\frac{1}{2}$	" 10

ROYAL.			
Broadside	...	25	by 20
Long Folio	...	25	" 10
Long Thirds	...	25	" 6 $\frac{2}{3}$
Broad Folio	...	20	" 12 $\frac{1}{2}$
Broad Thirds...	...	20	" 8 $\frac{2}{3}$
Broad Quarto...	...	20	" 6 $\frac{1}{4}$
Quarto (Common)	...	12 $\frac{1}{2}$	" 10
Octavo (Common)	...	10	" 6 $\frac{1}{2}$

MEDIUM.			
Broadside	...	24	by 19
Long Folio	...	24	" 9 $\frac{1}{2}$
Long Thirds	...	24	" 6 $\frac{2}{3}$
Broad Folio	...	19	" 12
Broad Thirds...	...	19	" 8
Broad Quarto...	...	19	" 6
Quarto (Common)	...	12	" 9 $\frac{1}{2}$
Octavo (Common)	...	9 $\frac{1}{2}$	" 6

DEMY.			
Broadside	...	22 $\frac{1}{2}$	by 17 $\frac{3}{4}$
Long Folio	...	22 $\frac{1}{2}$	" 8 $\frac{7}{8}$
Long Thirds	...	22 $\frac{1}{2}$	" 5 $\frac{1}{2}$
Broad Folio	...	17 $\frac{3}{4}$	" 11 $\frac{1}{4}$
Broad Thirds...	...	17 $\frac{3}{4}$	" 7 $\frac{1}{2}$
Broad Quarto...	...	17 $\frac{3}{4}$	" 5 $\frac{5}{8}$
Quarto (Common)	...	11 $\frac{1}{4}$	" 8 $\frac{7}{8}$
Octavo (Common)	...	8 $\frac{7}{8}$	" 5 $\frac{5}{8}$

LARGE POST.			
Broadside	...	21	by 16 $\frac{1}{2}$
Long Folio	...	21	" 8 $\frac{1}{2}$
Long Thirds	...	21	" 5 $\frac{1}{2}$
Broad Folio	...	16 $\frac{1}{2}$	" 10 $\frac{1}{2}$
Broad Thirds...	...	16 $\frac{1}{2}$	" 7
Broad Quarto...	...	16 $\frac{1}{2}$	" 5 $\frac{1}{4}$
Quarto (Common)	...	10 $\frac{3}{4}$	" 8 $\frac{1}{4}$
Octavo (Common)	...	8 $\frac{1}{4}$	" 5 $\frac{1}{4}$

CROWN.			
Broadside	...	20	by 15
Long Folio	...	20	" 7 $\frac{1}{2}$
Long Thirds	...	20	" 5
Broad Folio	...	15	" 10
Broad Thirds...	...	15	" 6 $\frac{2}{3}$
Broad Quarto...	...	15	" 5
Quarto (Common)	...	10	" 7 $\frac{1}{2}$
Octavo (Common)	...	7 $\frac{1}{2}$	" 5

POST.			
Broadside	...	19	by 15 $\frac{1}{2}$
Long Folio	...	19	" 7 $\frac{3}{4}$
Long Thirds	...	19	" 5 $\frac{1}{4}$
Broad Folio	...	15 $\frac{1}{2}$	" 9 $\frac{1}{2}$
Broad Thirds...	...	15 $\frac{1}{2}$	" 6 $\frac{1}{2}$
Broad Quarto...	...	15 $\frac{1}{2}$	" 4 $\frac{3}{4}$
Quarto (Common)	...	9 $\frac{1}{2}$	" 7 $\frac{3}{4}$
Octavo (Common)	...	7 $\frac{3}{4}$	" 4 $\frac{3}{4}$

FOOLSCAP.			
Broadside	...	17	by 13 $\frac{1}{2}$
Long Folio	...	17	" 6 $\frac{3}{4}$
Long Thirds	...	17	" 4 $\frac{1}{2}$
Broad Folio	...	13 $\frac{1}{2}$	" 8 $\frac{1}{2}$
Broad Thirds...	...	13 $\frac{1}{2}$	" 5 $\frac{5}{8}$
Broad Quarto...	...	13 $\frac{1}{2}$	" 4 $\frac{1}{4}$
Quarto (Common)	...	8 $\frac{1}{2}$	" 6 $\frac{3}{4}$
Octavo (Common)	...	6 $\frac{3}{4}$	" 4 $\frac{1}{4}$

POTT.			
Broadside	...	15 $\frac{1}{2}$	by 12 $\frac{1}{2}$
Long Folio	...	15 $\frac{1}{2}$	" 6 $\frac{1}{2}$

THIS TABLE shows, in the first column, the number of Hours in any given number of lines of composition, from 20 to 1150; the figures along the head the number of lines in the Hour.

EXAMPLE.—If 930 lines have been composed, containing 19 lines to the hour, look for the figures 19 at the top of the table, and carry the eye down till it meets with the nearest number, as, 931: in a line with that number in the first column are the figures 49, the number of hours, and one line over.

1	10	11	12	13	14	15	16	17	18	19	20	21	22	23
2	20	22	24	26	28	30	32	34	36	38	40	42	44	46
3	30	33	36	39	42	45	48	51	54	57	60	63	66	69
4	40	44	48	52	56	60	64	68	72	76	80	84	88	92
5	50	55	60	65	70	75	80	85	90	95	100	105	110	115
6	60	66	72	78	84	90	96	102	108	114	120	126	132	138
7	70	77	84	91	98	105	112	119	126	133	140	147	154	161
8	80	88	96	104	112	120	128	136	144	152	160	168	176	184
9	90	99	108	117	126	135	144	153	162	171	180	189	198	207
10	100	110	120	130	140	150	160	170	180	190	200	210	220	230
11	110	121	132	143	154	165	176	187	198	209	220	231	242	253
12	120	132	144	156	168	180	192	204	216	228	240	252	264	276
13	130	143	156	169	182	195	208	221	234	247	260	273	286	299
14	140	154	168	182	196	210	224	238	252	266	280	294	308	322
15	150	165	180	195	210	225	240	255	270	285	300	315	330	345
16	160	176	192	208	224	240	256	272	288	304	320	336	352	368
17	170	187	204	221	238	255	272	289	306	323	340	357	374	391
18	180	198	216	234	252	270	288	306	324	342	360	378	396	414
19	190	209	228	247	266	285	304	323	342	361	380	399	418	437
20	200	220	240	260	280	300	320	340	360	380	400	420	440	460
21	210	231	252	273	294	315	336	357	378	399	420	441	462	483
22	220	242	264	286	308	330	352	374	396	418	440	462	484	506
23	230	253	276	299	322	345	368	391	414	437	460	483	506	529
24	240	264	288	312	336	360	384	408	432	456	480	504	528	552
25	250	275	300	325	350	375	400	425	450	475	500	525	550	575
26	260	286	312	338	364	390	416	442	468	494	520	546	572	598
27	270	297	324	351	378	405	432	459	486	513	540	567	594	621
28	280	308	336	364	392	420	448	476	504	532	560	588	616	644
29	290	319	348	377	406	435	464	493	522	551	580	609	638	667
30	300	330	360	390	420	450	480	510	540	570	600	630	660	690
31	310	341	372	403	434	465	496	527	558	589	620	651	682	713
32	320	352	384	416	448	480	512	544	576	608	640	672	704	736
33	330	363	396	429	462	495	528	561	594	627	660	693	726	759
34	340	374	408	442	476	510	544	578	612	646	680	714	748	782
35	350	385	420	455	490	525	560	595	630	665	700	735	770	805
36	360	396	432	468	504	540	576	612	648	684	720	756	792	828
37	370	407	444	481	518	555	592	629	666	703	740	777	814	851
38	380	418	456	494	532	570	608	646	684	722	760	798	836	874
39	390	429	468	507	546	585	624	663	702	741	780	819	858	897
40	400	440	480	520	560	600	640	680	720	760	800	840	880	920
41	410	451	492	533	574	615	656	697	738	779	820	861	902	943
42	420	462	504	546	588	630	672	714	756	798	840	882	924	966
43	430	473	516	559	602	645	688	731	774	817	860	903	946	989
44	440	484	528	572	616	660	704	748	792	836	880	924	968	1012
45	450	495	540	585	630	675	720	765	810	855	900	945	990	1035
46	460	506	552	598	644	690	736	782	828	874	920	966	1012	1058
47	470	517	564	611	658	705	752	799	846	893	940	987	1034	1081
48	480	528	576	624	672	720	768	816	864	912	960	1008	1056	1104
49	490	539	588	637	686	735	784	833	882	931	980	1029	1078	1127
50	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150

Table showing the Price of any Number of Hours or Thousands, from One Hour or 1,000 to Eighty-Five Hours or 85,000, from 5³d. to 9d. per Hour or Thousand.

TH.	5 ³ d.	6d.	6 ¹ d.	6 ¹ 2d.	6 ³ d.	7d.	7 ¹ d.	7 ¹ 2d.	7 ³ d.	8d.	8 ¹ d.	8 ¹ 2d.	8 ³ d.	9d.
2	s. 0	d. 11	s. 1	d. 0	s. 1	d. 1	s. 1	d. 2	s. 1	d. 4	s. 1	d. 4	s. 1	d. 6
3	0	11	1	0	1	1	1	1	1	0	1	2	2	3
4	1	11	1	0	1	1	1	1	1	0	1	2	2	3
5	1	11	1	0	1	1	1	1	1	0	1	2	2	3
6	2	10	2	0	2	1	1	1	2	0	2	3	3	4
7	2	10	2	0	2	1	1	1	2	0	2	3	3	4
8	3	10	3	0	3	1	1	1	2	0	2	3	3	4
9	3	10	3	0	3	1	1	1	2	0	2	3	3	4
10	4	9	4	0	4	1	1	1	2	0	2	3	3	4
15	4	9	4	0	4	1	1	1	2	0	2	3	3	4
20	7	7	7	0	7	1	1	1	2	0	2	3	3	4
25	9	7	9	0	9	1	1	1	2	0	2	3	3	4
30	11	4	11	0	11	1	1	1	2	0	2	3	3	4
35	14	4	14	0	14	1	1	1	2	0	2	3	3	4
40	16	9	16	0	16	1	1	1	2	0	2	3	3	4
45	19	2	19	0	19	1	1	1	2	0	2	3	3	4
50	21	6	21	0	21	1	1	1	2	0	2	3	3	4
55	23	11	23	0	23	1	1	1	2	0	2	3	3	4
60	26	4	26	0	26	1	1	1	2	0	2	3	3	4
65	28	9	28	0	28	1	1	1	2	0	2	3	3	4
70	31	1	31	0	31	1	1	1	2	0	2	3	3	4
75	33	6	33	0	33	1	1	1	2	0	2	3	3	4
80	35	11	35	0	35	1	1	1	2	0	2	3	3	4
85	38	4	38	0	38	1	1	1	2	0	2	3	3	4
90	40	8	40	0	40	1	1	1	2	0	2	3	3	4

THE NUMBER OF LINES CONTAINING A THOUSAND ENS.

In any body of type, from Pica to Nonpareil, and from 10 to 40 Pica ems in width.

PICA EMS IN WIDTH.	NUMBER OF LINES CONTAINING A THOUSAND LETTERS.						
	Pica.	Small Pica.	Long Primer.	Bourg.	Brevier.	Minion	Nonp.
10	50	43	40	36	32	29	25
11	45	40	36	32	29	27	23
12	42	36	32	29	27	24	21
13	38	33	30	27	25	23	19
14	36	31	29	25	23	21	18
15	33	29	29	23	23	20	17
16	31	27	25	22	20	19	16
17	29	26	23	21	19	17	15
18	28	24	22	20	18	16	14
19	26	23	21	19	17	15	13
20	25	22	20	18	16	15	13
21	24	21	19	17	15	14	12
22	23	20	18	16	15	13	12
23	22	19	17	15	14	13	11
24	21	18	17	15	13	12	10
25	20	17	16	14	13	12	10
26	19	17	15	14	12	11	10
27	19	16	15	13	12	11	9
28	18	15	14	12	12	11	9
29	17	15	14	12	11	10	9
30	17	14	13	12	11	10	8
31	16	14	13	11	10	10	8
32	16	14	12	11	10	9	8
33	15	13	12	11	10	9	8
34	15	13	12	10	9	9	7
35	14	12	11	10	9	8	7
36	14	12	11	10	9	8	7
37	14	12	11	10	9	8	7
38	13	11	10	9	9	8	7
39	13	11	10	9	8	8	6
40	12	11	10	9	8	7	6

PRICES OF JOB PRINTING.

The following prices are given simply as a guide. They are the lowest charges that ought to be made, even where printing offices are furnished with every facility for executing cheap printing.

<i>Posters.</i>	50	100	200	Per 100 after.
Double Royal ...	8s. 6d.	13s. 6d.	19s. 6d.	6s. 6d.
Double Demy ...	7 6	11 6	17 0	5 6
Double Crown ...	6 0	9 6	14 0	4 6

If in coloured ink—Double Royal and Double Demy, 2s. to 3s. 6d. per 100 extra. Double Crown, 1s. to 2s. 6d. per 100 extra. If in two colours—25 to 50 per cent. extra.

Posting and other bills.

Royal broadsides ...	6 0	8 6	12 6	4 0
„ folio ...	4 6	6 6	9 6	3 0
„ quarto ...	3 6	4 6	6 6	2 0
Demy broadsides ...	5 0	7 6	11 0	3 6
„ folio ...	4 0	5 6	8 0	2 6
„ quarto ...	3 0	4 0	5 6	1 6
Crown broadsides ...	4 0	6 6	10 0	3 6
„ folio ...	3 0	4 6	7 0	2 3
„ quarto ...	2 6	3 0	4 6	1 6

Sale Bills and others containing an extra quantity of matter will stand a charge of at least 25 per cent. more than the above prices.

Hand Bills on common paper.

	1000	2000	5000	Per 1000 after.
Crown 8vo. ...	4 6	6 6	12 6	1 6
Demy 8vo. ...	5 6	8 0	15 6	2 0

Circulars on writing paper, fly leaf.

	50	100	200	Per 100 after.
Large post quarto ...	4 6	6 6	10 6	4 0
„ 8vo ...	3 0	4 0	6 6	2 6
Small post quarto ...	3 6	5 0	8 6	3 6
„ 8vo ...	2 6	3 6	5 6	2 0

Memorandums.

Large post 8vo ...	1 6	2 0	3 0	1 0
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Billheads—Foolscap.

6mo ..	1 6	2 0	3 0	1 0
4to ..	2 0	3 0	4 6	1 6
Two-thirds of long fol.	2 6	4 0	6 0	2 0
Large Post 8vo. ...	1 6	2 0	3 0	1 0

<i>Common Cards</i>	50	100	200	500	1000	Per 1000 after.
Small ...	1/6	2/0	3/0	5/0	9/0	8/0
Large ...	2/0	2/6	3/6	6/6	12/0	10/6

CORRECTED FOR PRESS.

Cap. / Madras, to which Clive had been *Cap.*
el appointed, was, at this time, perypas, *el*
 the first in importance of the Com-
 pany's settlements.)
Run on / In the preceding century / Fort
italics / Saint George had arisen on a
tr. / spot barren beaten by a raging
by / surf and in the neighbourhood a
 town, inhabited many thousands
 of natives, had sprung up, as they
 spring up in the East, with the
 rapidity of the Prophet's gourd. *towns*
N.P. / There were already in the suburbs
 many white villas each surrounded
 by its garden whither the agents of
 the company retired, after the labours
 of the desk, to enjoy the cool breeze
 which springs up at sunset from the
 Bay of Bengal. The habits of these
 mercantile grandees appear to have
 been more profuse, luxurious, and
 ostentatious than those of the high
 judicial and political functionaries
 who have succeeded them. *tr.*
 Lord
 Clive, by LORD MACAULAY.

and The
 warehouse

READY FOR PRESS.

“MADRAS, to which CLIVE had been appointed, was, at this time, perhaps, the first in importance of the Company’s settlements. In the preceding century, Fort *St. George* had arisen on a barren spot beaten by a raging surf; and in the neighbourhood a town, inhabited by many thousands of natives, had sprung up, as towns spring up in the East, with the rapidity of the prophet’s gourd.

“There were already in the suburbs many white villas (each surrounded by its garden), whither the agents of the Company retired, after the labours of the desk and the warehouse, to enjoy the cool breeze which springs up at sunset from the Bay of Bengal. The habits of these mercantile grandees appear to have been more profuse, luxurious, and ostentatious than those of the high judicial and political functionaries who have succeeded them.”—*Lord Clive, by*
LORD MACAULAY.

ACCENTS.

The accented letters are—

Acute	á é í ó ú	Diæresis	ä ë ï ö ü
Grave.....	à è ì ò ù	Long.....	ā ē ī ō ū
Circumflex ...	â ê î ô û	Short	ǣ ǿ ȳ ȕ

French ç, Spanish ñ, Welsh ŵ and ŷ.

SIGNS.

The following are a few of the most common signs—

lb, Pound weight.	+ Plus, Addition.
♯, Per, each.	— Minus, or less, Subtraction
@, at, or to.	= Equal.
£, Pound sterling, pound £.	× Multiplication.
/, Solidus, shilling mark.	÷ Division.
^a / _c , Account.	° Degree.
‰, Per cent.	' Minute.

POINTS, &c.

, Comma	' Apostrophe	& Short "and"
; Semicolon	- Hyphen	() Parentheses
: Colon	! Admiration	[] Brackets
. Full-point	? Interrogation	☞ Fist

ODD SORTS.

Superior letters and figures are those which stand at the top of the type, thus—^a, ^b, ^c, ^d, ¹, ², ³, ⁴.





Inferiors stand at the bottom, thus—_a, _b, _c, _d, ₁, ₂, ₃, ₄.

Fractions are cast as single types— $\frac{1}{4}$, $\frac{2}{3}$, $\frac{3}{4}$; or as half-types, called split fractions—¹T, ²Z, ³J.

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En — Em — 2-em — 3-em — 4-em —

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2-em  3-em  4-em  Superior 

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Length.	Width.	Size.	Pica.	Small Pica.	L. Primer	Bourgeois	Brevier.	Minion.	Nonpareil
Picas.		<i>F^{cap}.</i>	Ens.	Ens.	Ens.	Ens.	Ens.	Ens.	Ens.
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19	15	16mo.	570	748	888	1134	1334	1600	2280
21	12	18mo.	504	672	780	1020	1184	1400	2016
		<i>Crown.</i>							
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23	15	18mo.	690	884	1073	1419	1610	1900	2760
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21	12	32mo.	504	672	780	1020	1184	1400	2016
		<i>Royal.</i>							
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48	27	8vo.	2592	3410	4020	5313	6142	7290	10368
40	21	12mo.	1680	2208	2600	3420	3968	4690	6720
29	21	16mo.	1218	1584	1872	2520	2880	3430	4872
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TABLES OF SIGNATURES AND FOLIOS.

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3	D	9	17	33	17	49	25	65	D	73
4	E	13	25	49	25	73	37	97	E	109
5	F	17	33	65	33	97	49	129	F	145
6	G	21	41	81	41	121	61	161	G	181
7	H	25	49	97	49	145	73	193	H	217
8	I	29	57	113	57	169	85	225	I	253
9	K	33	65	129	65	193	97	257	K	289
10	L	37	73	145	73	217	109	289	L	325
11	M	41	81	161	81	241	121	321	M	361
12	N	45	89	177	89	265	133	353	N	397
13	O	49	97	193	97	289	145	385	O	433
14	P	53	105	209	105	313	157	417	P	469
15	Q	57	113	225	113	337	169	449	Q	505
16	R	61	121	241	121	361	181	481	R	541
17	S	65	129	257	129	385	193	513	S	577
18	T	69	137	273	137	409	205	545	T	613
19	U	73	145	289	145	433	217	577	U	649
20	X	77	153	305	153	457	229	609	X	685
21	Y	81	161	321	161	481	241	641	Y	721
22	Z	85	169	337	169	505	253	673	Z	757
23	2A	89	177	353	177	529	265	705	24mo.	
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26	2D	101	201	401	201	601	301	801	D	97
27	2E	105	209	417	209	625	313	833	E	145
28	2F	109	217	433	217	649	325	865	F	193
29	2G	113	225	449	225	673	337	897	G	241
30	2H	117	233	465	233	697	349	929	H	289
31	2I	121	241	481	241	721	361	961	I	337
32	2K	125	249	497	249	745	373	993	K	385
33	2L	129	257	513	257	769	385	1025	L	433
34	2M	133	265	529	265	793	397	1057	M	481
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36	2O	141	281	561	281	841	421	1121	O	577

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8vo.	1	4 $\frac{1}{4}$	1	7 $\frac{1}{2}$	1	10 $\frac{3}{4}$	2	2	2	5 $\frac{1}{4}$	2	8 $\frac{1}{2}$	2	11 $\frac{3}{4}$
4to.....	2	8 $\frac{1}{2}$	3	3	3	9 $\frac{1}{2}$	4	4	4	10 $\frac{1}{2}$	5	5	5	11 $\frac{1}{2}$
Third....	3	7 $\frac{1}{2}$	4	4	5	1	5	9 $\frac{1}{2}$	6	6	7	3	7	11 $\frac{1}{2}$
Half-sheet	5	5	6	6	7	7	8	8	9	9	10	10	11	11
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Third....	8	8	9	5	10	2	10	10	11	7	12	3 $\frac{1}{2}$	13	0
Half-sheet	13	0	14	1	15	2	16	3	17	4	18	5	19	6
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NUMBER OF LEADS IN A POUND.

Lengths	4 to Pica.	6 to Pica.	8 to Pica.	Lengths	4 to Pica.	6 to Pica.	8 to Pica.
4 ems	144	216	288	26 ems	22	33	44
5 ems	112	168	224	27 ems	21	31	42
6 ems	96	144	192	28 ems	20	30	40
7 ems	82	123	164	29 ems	20	30	40
8 ems	72	108	144	30 ems	19	29	38
9 ems	64	96	128	31 ems	19	28	38
10 ems	56	84	112	32 ems	18	27	36
11 ems	52	78	104	33 ems	17	26	34
12 ems	48	72	96	34 ems	17	25	34
13 ems	44	66	88	35 ems	16	24	32
14 ems	41	61	82	36 ems	16	24	32
15 ems	38	57	76	37 ems	15	23	30
16 ems	36	54	72	38 ems	15	22	30
17 ems	34	51	68	39 ems	15	22	30
18 ems	32	48	64	40 ems	14	21	28
19 ems	30	45	60	41 ems	14	21	28
20 ems	28	42	56	42 ems	14	21	28
21 ems	27	40	54	43 ems	13	20	26
22 ems	26	39	52	44 ems	13	19	26
23 ems	25	37	50	45 ems	13	19	26
24 ems	24	36	48	46 ems	12	18	24
25 ems	23	34	46	47 ems	12	18	24

USEFUL RECEIPTS, &c.

Setting Short Measures.—Say the measure is two ems brevier. Make up the stick to ten ems, drop in two four-em quads of its own body in the end of the stick farthest from you, justify up to them, and go on filling the stick; when it is full, empty it and remove the quads.

To Make Lye.—Use one pound of pearlash to three quarts of water, or one pound of potash to five quarts of water.

"Chaostype" and "Selenotype" is said to be quite simple, and consists of pouring quickly but not continuously, melted metal into a cold stereo casting-box in which the shape required has previously been arranged, with the help of core bars, or the whole box can be filled and and cut to sizes afterwards. We are informed that is the sole mystery, but the various "chaotic" patterns are the result of practice in dropping in the metal.

Dryer for Printing Ink.—Mix 6 oz. of balsam of copaiba with one quart of spirits of turpentine; add a little to the printing ink when necessary. This dryer will make the ink work freely, and, in addition, will brighten the colour.

A Recipe for Gumming.—Dissolve a pound of good gum arabic in three pints of cold water. Then add a tablespoonful of glycerine and two ounces of honey. Strain the mixture through flannel. The glycerine prevents the gummed labels cracking and curling up when dry. A sponge is the right thing to use—not a brush. If the mixture is to stand any time, a few drops of sulphuric acid will prevent its turning mouldy or losing strength.

To Take Creases out of drawing paper or engravings, lay the paper or engraving face downward, on a sheet of smooth, unsized, white paper; cover it with another sheet of the same, very slightly dampened, and iron with a moderately warm flat-iron.

Set-off Paper.—A capital one may be made by lightly rubbing with glycerine, or saturating the paper with benzine. These are preferable both to oil and paraffin wax.

To Make Postal Tubes.—The tubes now so largely used are made by rolling a sheet of paper selected—cartridge or stout rope-brown—on a cylinder of wood of the required length and diameter of inside required. If you want a tube two feet long cut the paper to that width, and about a yard in length; paste the sheet evenly all over, and then proceed to roll tightly on the wooden cylinder. In about an hour the tube will be dry, and the cylinder may be pushed out.

Composition for Mounting Plates.—The following is recommended for fixing electros on wood, etc. Common joiners' glue is dissolved to a consistency of syrup, and pure wood-ashes are added under constant stirring until the mixture has the appearance of varnish. The adhesive power of this composition is said to be very great, the addition of the ashes preventing the electros from parting from the wood even when washed with lye.

Another Method.—A good mastic for fixing stereotype plates on wood or metal is obtained by dissolving ordinary cobblers' wax until it is about the thickness of a syrup, and then stirring in a sufficient quantity of wood-ash to make it into a kind of varnish.

How to preserve Electrotypes.—When electrotypes are out of use and require to be stored, they should be kept in a dry place, and the surface of the plates should be oiled to prevent verdigris. When they become clogged with hard, dry ink, which the pick brush and turps fail to remove, they may be cleaned and made equal to new in a few minutes by covering their surface with a little creosote, and afterwards brushing the surface with turps.

Proportion of Antimony for Stereo Metal.—About 12 per cent. of antimony is sufficient to mix with lead for stereo metal, and will make it quite hard enough without the addition of tin.

Ticket Writers' Ink.—Dissolve gum arabic in common ink to the consistence of ordinary office gum, then add one ounce of powdered lump sugar to a pint of the mixture, and use with a brush. Indian ink will carry a gloss if mixed in manner as above. If colours are required, mix with weak glue the following with a bone knife on a plate or piece of glass, and add gum to the consistency mentioned above:—Yellow ink—chrome or gamboge; red—vermilion or Venetian red; crimson—lake; blue—ultramarine; green—emerald or Navy Brunswick; brown—umber, vandyke, or purple brown; purple—indigo and lake.

To Perfume a Job.—Get a few quires of blotting paper and sprinkle the sheets with the perfume desired, then put the blotting under a weight until it becomes dry. When dry, put circulars, programmes, &c., between the sheets, and place them under a weight for a few hours. When removing them, they will be found perfumed. The blotting, if kept from the air, may be utilized many times, and if placed in a writing desk, will impart the odour to its contents. They can be made to retain their perfume for a long time by keeping them free from exposure to air.

Composition for Bronze Work is a mixture of chrome yellow and varnish. The chrome is well ground with a muller into the varnish. This gives the bronze, especially gold, a fuller tint than if the plain varnish only is used. It answers equally well for copper, citron, or emerald bronze. To give silver bronze a deep appearance ordinary dark blue ink may be used.

To Render Pencil Notes Indelible.—Pencil notes found in a book, or placed there as annotations, may be rendered indelible by washing them with a spongedipped in warm vellum size or milk.

To Clean Brass Rules.—When verdigris gathers on the face of brass rule, and it won't print sharp, take a little diluted oxalic acid and wash the face—never scrape with a knife.

Copyright.—The term of copyright in any book published in the lifetime of the author shall endure for the natural life of such author, and for the further term of seven years, commencing at the time of his death; provided that, if the said term of seven years shall expire before the end of forty-two years from the first publication of the book, the copyright shall endure for forty-two years. The copyright in any book published after the death of its author shall endure for the term of forty-two years from the first publication thereof, and shall be the property of the proprietor of the author's manuscript from which it shall be first published.

COMMON ABBREVIATIONS OF WORDS.

altho',	although.	th',	the.
can't,	can not.	that's,	that is.
couldn't,	could not.	there's,	there is.
don't,	does not, do not.	they'd,	they had, they would.
d'ye,	do you.	they're,	they are.
'em,	them.	they've,	they have.
e'en,	even.	tho',	though.
e'er,	ever.	thou'dst,	thou wouldst.
hadn't,	had not.	thou'lt,	thou wilt.
haven't,	have not.	thou'rt,	thou art.
he'd,	he had, he would.	thou'st	thou wast.
here's,	here is.	thro',	through.
in't,	in it.	'tis,	it is.
I'd,	I had, I would.	t'other,	the other.
I'll,	I will.	'twas,	it was.
I'm,	I am.	'twere,	it were.
isn't,	is not.	'twill,	it will.
i'the,	in the.	upon't,	upon it.
it's,	it is.	wasn't,	was not.
I've,	I have.	was't,	was it.
let'em,	let them.	we'd,	we had, we would.
let's,	let us	we're,	we are.
mayn't,	may not.	wer'n't,	we are not.
mightn't,	might not.	we've,	we have.
ne'er,	never.	what's,	what is.
o'er,	over.	where's,	where is.
on't,	of it, on it.	who's,	who is.
o'th',	of the, on the.	won't,	will not.
oughtn't,	ought not.	wouldn't,	would not.
shan't	shall not.	you'd,	you had, you would.
she's,	she is.	you're,	you are.
shouldn't,	should not.	you've,	you have.

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